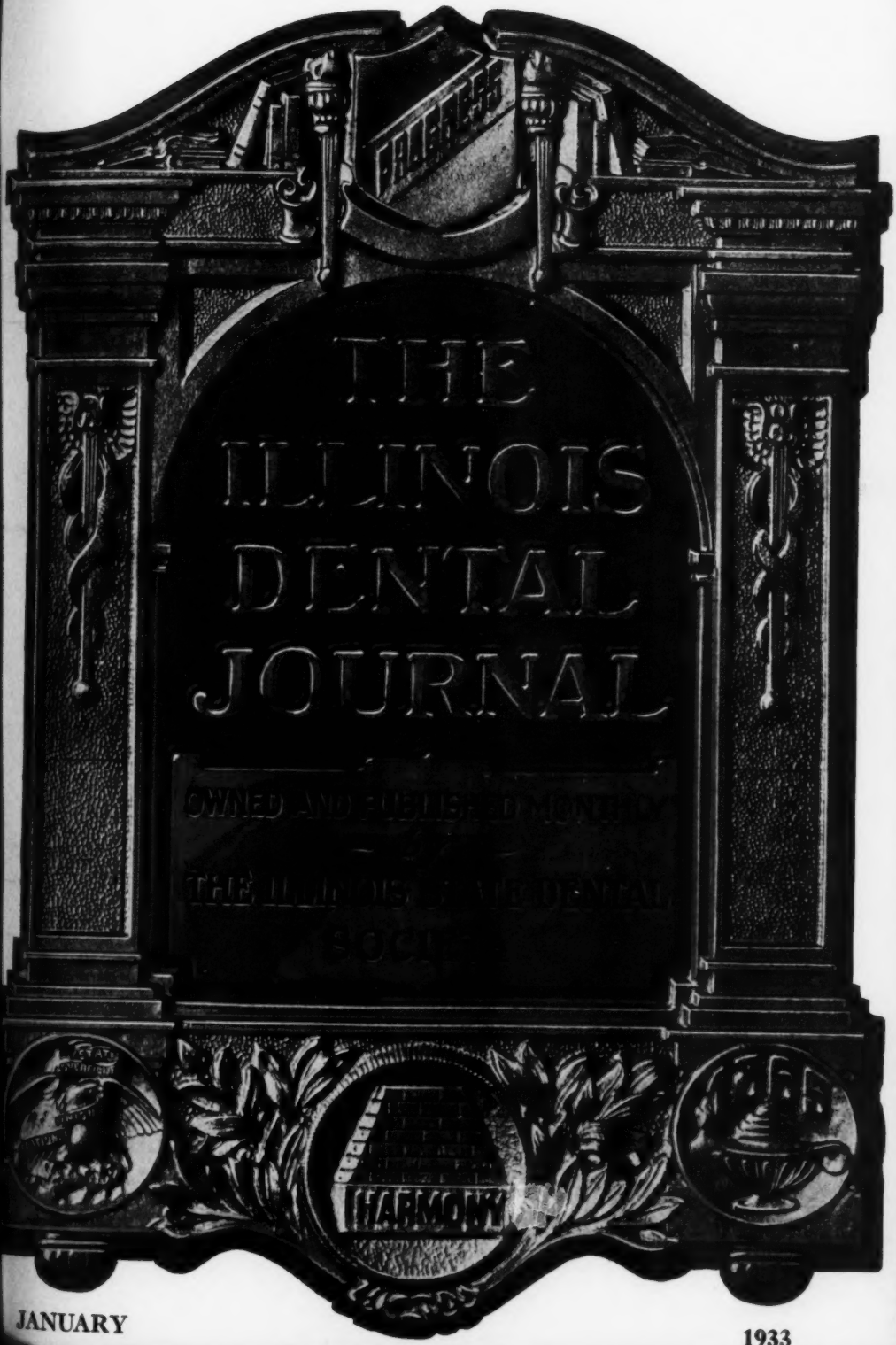

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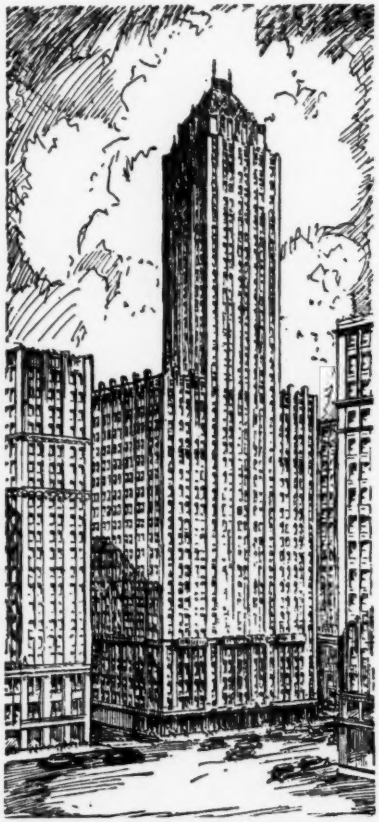

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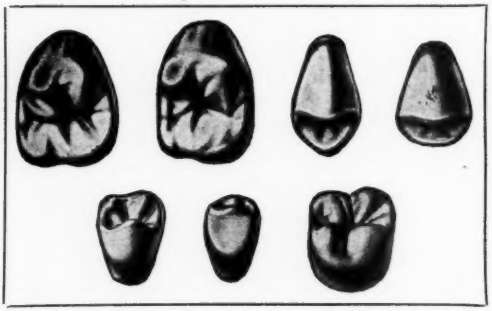

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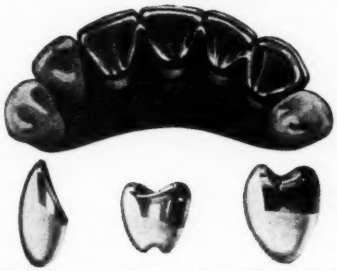

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VOL. II JANUARY, 1933 NO. 5

Published on the 15th of each month by The Illinois State Dental Society under the direction of the Publication Committee. Entered as second-class matter at the post office at La Grange, Illinois, under Act of March 3, 1879. Publication Office, 204 Sunset Ave., La Grange, Ill.

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SUBSCRIPTION price of this *Journal* to persons not members of the Illinois State Dental Society is $2.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $2.50 per year for all foreign countries included in the postal union. Canada, $2.25. Single current copies, 25 cents.

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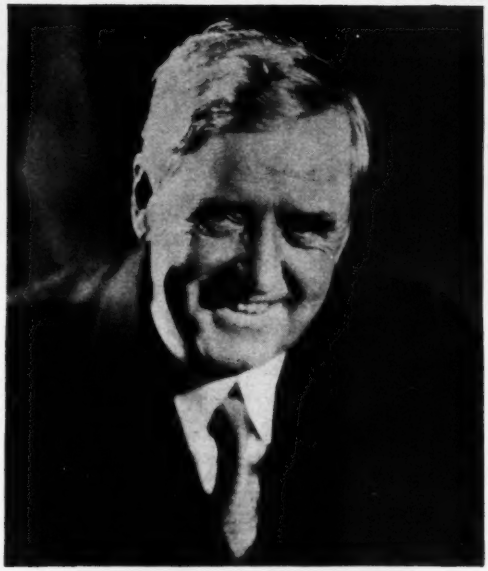

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THE NEXT STEP, which is the tube impression, is a very particular part. Instead of a shoulder, we have to definitely locate a line just under the gum margin which must be the greatest diameter of the prepared tooth. The band, or tube, should fit snugly.

TRY THE BAND ON THE TOOTH, be sure that it really fits, and force it slowly on just under the gum margin. On the band in position mark or scratch with a sharp instrument the curvature of the crest of the gum. Remove the band and festoon it as indicated to conform to the gum margin. Replace the band and gently, but firmly, force it to position just under the gum margin again and recheck. At this time mark on the mesio- and disto-labial of the band the incisal edge of the approximating teeth. These marks will help to determine just how far to place the band when taking the tube impression. Also check labial with an X.

(To be continued)

Sincerely,

Owen E Cassill, D.D.S.
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THE ILLINOIS DENTAL JOURNAL

Volume II January, 1933 Number 5

MORE ABOUT THE PROPOSED NEW ILLINOIS DENTAL PRACTICE ACT

WITH A VIEW to further informing the membership as to what the special committee on the Study of Dental Laws of the Illinois State Dental Society has accomplished and to offer opportunity to every member who may wish to present suggestions regarding proposed changes in the Illinois Dental Practice Act, the following provisions are submitted by the committee, for study and comment, with the clear understanding that these provisions have not as yet been finally accepted by the Special Committee, have not as yet been accepted by the Committee on Legislation and of course have not as yet been presented to or received the endorsement of, the Council of the Illinois State Dental Society. A number of other provisions have been considered by the committee but are not in sufficiently complete form to permit publication at this time.

The final draft of the proposed new Act will be published in the next issue of THE ILLINOIS DENTAL JOURNAL.

Perhaps it is true that no written statute has ever approached perfection, but with the sincere co-operation of all components, the earnest endeavor of every member, the proposed new Act will be as nearly as may be possible, a model Dental Practice Act, warranting the hearty and unanimous support of all ethical dentists throughout the state of Illinois and the approbation of the public it seeks to protect.

Twenty-eight of our States and four of the Provinces of Canada have enacted statutes prohibiting the practice of dentistry by corporations and Supreme Court decisions in Colorado, New York, Iowa, Kansas and Ohio have sustained these statutes.

Eight of the States, the territory of Hawaii, and four of the provinces of Canada have statutes prohibiting advertising, somewhat similar to the section presented herewith.

A. B. PATTERSON, *Chairman,*
FRANKLIN PORTER, *Secretary,*
Special Committee on Dental Laws.

CORPORATE PRACTICE OF DENTISTRY PROHIBITED

It shall be unlawful for any person or persons to practice or offer to practice dentistry or dental surgery under the name of a corporation, company, association or trade name; or under any name except his or her own proper name, which shall be the name used in his or her license as issued by the Illinois Board of Dental Examiners; or to conduct, maintain, operate, own or provide a dental office in the State of Illinois, either directly or indirectly, or by his or her agents or employees; or for such person

or persons to hold themselves out to the public, directly or indirectly, or through agents or employees as soliciting patronage or as being qualified to practice dentistry or dental surgery in this State; or to operate, manage or be employed in any room, rooms or office where dental service is rendered or contracted for, under the name of a corporation, company, association or trade name: *Provided, however,* that any person or persons now practicing dentistry or dental surgery under any corporation, company, association or trade name may use his, her or their personal names as successor to the name now used for a period of two years from the time of the passage of this Act, at the expirations of such time the use of all corporation, company association or trade names shall be discontinued.

EXEMPTIONS

(a) The practice of his profession by a physician or surgeon, licensed as such and registered under the laws of this State, unless he undertakes to reproduce or reproduces lost parts of the human teeth in the mouth or to restore or replace in the human mouth lost or missing teeth;

(b) The practice of dentistry in the discharge of their official duties by dentists in the United States Army, the United States Navy, or the United States Public Health Service;

(c) The practice of dentistry by students in dental colleges approved by the Department of Registration and Education, when acting under the direction and general supervision of a registered or licensed dentist acting as instructor;

(d) The practice of dentistry by licensed dentists of other states or countries at meetings of the Illinois State Dental Society or component parts thereof, alumni meetings of dental colleges, or any other like dental organizations, while appearing as clinicians;

(e) The use of roentgen and other rays for making radiograms or similar records of dental or oral tissues;

(f) The making of artificial restorations, substitutes, appliances, or materials for the correction of disease, loss, deformity, malposition, dislocation, fracture, injury to the jaws, teeth, lips, gums, cheeks, palate, or associated tissues or other parts, either upon order, prescription, casts, models, or from impression furnished by a licensed or registered dentist.

ADVERTISING PROHIBITED

It shall be unlawful for any person, firm or corporation to directly or indirectly publish or circulate any fraudulent, false or misleading statements as to the skill or method of practice of any person or operator; or in any way to advertise to practice dentistry or dental surgery without pain; or to advertise in any manner with a view of deceiving the public, or in any way that will tend to deceive or defraud the public; or to claim superiority over neighboring dental practitioners; or to publish reports of cases or certificates of same in the public press or otherwise; or to advertise as using any anesthetic, drug, formula, material, medicine, method or system which is either falsely advertised or misnamed; or to advertise free operations or examina-

tions as an inducement to secure dental patronage; or to advertise any amount as a price or fee for the service or services of any person engaged as principal or agent in the practice of dentistry or dental surgery, or for any material or materials whatsoever used or to be used; or to employ "cappers" or "steerers" to obtain business; or to exhibit or use specimens of dental work, posters or any other media calling attention of the public to any person engaged in the practice of dentistry or dental surgery; or to give a public demonstration of skill or methods of practicing dentistry or dental surgery upon or along the streets or highways, or any place other than his office where he is known to be regularly engaged in the practice of his profession, and any person committing an offense against any of the provisions of this section, shall, upon conviction, be subjected to such penalties as are provided in this Act, with exceptions as specially provided under "Exemptions of this Act."

Exemption From Jury Service

All dentists or dental surgeons now legal practitioners of dentistry or dental surgery in this State, or those who may hereafter become such, shall be exempt from service as jurors in any of the courts of the State.

Prescriptions

Registered pharmacists of this State may fill prescriptions of legally licensed dentists of this State for any drug necessary in the practice of dentistry.

Death Certificates

Dentists may sign death certificates the same as physicians, when necessary in the practice of their profession.

Penalties for Violation of This Act

Any person who shall practice or offer to practice dentistry or dental surgery in this State without being licensed or without being registered for that purpose; or who violates any of the provisions of this Act, for which no specific penalty has been provided herein, shall be subject to prosecution before any court of competent jurisdiction upon complaint, information or indictment, and, upon conviction, shall be deemed guilty of a misdemeanor and shall be fined for the first offense by any sum not less than two hundred dollars ($200) nor more than five hundred dollars ($500); and, after conviction of any violation of any provision of this act, shall be deemed guilty of a felony, and, upon conviction thereof, shall be punished by a fine of not less than one thousand dollars ($1,000) and by imprisonment in the State prison for not less than one (1) year.

Each day of practice or attempt to practice dentistry or dental surgery in violation of this Act shall be deemed a separate offense within the meaning of this Act.

All fines imposed and collected under this Act shall be paid to the Illinois Board of Dental Examiners for its use.

License Revocation

A license to practice dentistry or dental surgery shall be revoked when the licensee is guilty of any of the following acts or offenses:

1. Fraud in procuring license.
2. Conviction of a felony.
3. Wilful or repeated violations of the

rules of the State Department of Health.

4. Continued practice while knowingly having an infectious or contagious disease.
5. Acceptance of a fee for service as a witness, without the knowledge of the court, in addition to the fee allowed by the court.
6. Division of fees or agreeing to split or divide the fees received for professional services with any person for bringing or referring a patient, or assisting in the care or treatment of a patient, without the consent of said patient or his legal representative.

JURISDICTION OF REVOCATION PROCEEDINGS

Any court of competent jurisdiction of the county, in which a licensee resides or engages in the practice of dentistry or dental surgery, shall have jurisdiction of the proceedings to revoke a license.

PARTIAL DENTURE AND REMOVABLE BRIDGE*

By W. I. MCNEIL, D. D. S., *Chicago*

PARTIAL denture is neither a new term nor a condition which has been brought about during the past few years. Since appliances were first constructed, partial dentures, along with many other means of restorations, have been known to both the public as well as the dental profession. There are many different types of these restorations, using every conceivable means of anchorage in order to keep them in position both under mastication and at rest. The fact that there has been a continuance throughout these many years should be sufficient evidence that a vast majority of patients are receiving satisfactory service from this type of appliance.

The term removable bridge is of a recent coinage and has had its effect upon both practitioner and patient. If this particular form of restoration is constructed in conditions where indicated there is little doubt as to its efficiency and service. However, the percentage of indications has been greatly exaggerated with the result that many removable bridges have been installed where fixed restorations should have been constructed.

Perhaps the one thing which did more to make removable bridge popular was the fee which could be collected from such an appliance. Such a cause is absolutely not justifiable because it takes less time and very little more material to build a removable bridge as compared to a fixed one. It is rather surprising how the effect of an increased fee may alter the particular case that is indicated.

Removable bridges to a large degree are indicated in the younger or the mid-

*Read before the 68th Annual Meeting of the Illinois State Dental Society, Springfield, May, 1932.

dle aged group, while partial dentures are usually necessary in patients beyond forty-five years of age. The typical bridge condition is the loss of but a few teeth and those to be used as abutments in good condition and no need of fillings or crowns.

No doubt the reason which gave rise to removable bridges was the fact that very little tooth structure was sacrificed in order to make this type of restoration —whereas, a fixed bridge required the grinding of tooth in order to obtain the necessary support for the bridge. Consequently, where teeth need no repair a removable bridge is indicated; and where crowns and inlays are necessary and the span is not too great, a fixed bridge should be inserted.

Where the question of a partial denture must be considered there is always many more teeth missing than in a removable bridge. There may be several spaces, or there may be only one or two. The combination and arrangement of remaining teeth run into the thousands, but irrespective of the case there are always fundamental principles which must be considered.

The success of any partial denture or removable bridge is largely dependent upon abutment teeth, but the saddle areas may, and should be given proper consideration.

It is needless to state that partials supported by abutment teeth on either end should prove more satisfactory than those supported by tissue alone. A large per cent of partials are dependent upon teeth for support and consequently in making a diagnosis one should have radiograms of these abutment teeth and the bony structures around them. No tooth can be stronger than the substance in which they are imbedded. In most instances there has been considerable recession of the gum tissue about these teeth and perhaps some absorption of the bony structures. The latter can only be determined by radiograms.

Clinically, the contemplated abutment teeth appear perfectly sound and healthy, but when radiogramed show distinct pathological changes occurring at the root ends.

To use such teeth for abutments would be folly and no doubt detrimental to the health of the patient to retain them in the mouth. Radiograms show the density of the process, the number of roots on abutment teeth, the amount of bony structure supporting these teeth, and numerous other aids which the operator should thoroughly understand before attempting to construct a partial denture. Radiograms may not show any condition which would be unfavorable, but if these teeth are not situated in such a position in the mouth that mechanical support can be obtained they would be of little service to maintain the partial denture in position. Fortunately because of mechanical advances it is possible to make some form of support on most any tooth, irrespective of its position in the mouth. These conditions cause operators to construct many more lower partials than uppers. More often the six or eight lower anterior teeth are the last to be lost and fortunately two or more of these teeth can be utilized to great advantage. Recent developments permit attachments on single teeth without any great amount of strain upon the

tooth. This is quite true of the bar cast clasps.

When diagnosing these contemplated partial denture cases the operator should decide what type of appliance would give the patient the greatest service. It is quite impossible to make a thorough diagnosis without consciously or unconsciously making a general survey of the mouth, which means to take a view of, overlook, examine, measure and estimate a particular view or examination. Our first thought is the logical teeth for attachments; second, their position; third, the general design of the case, and finally, materials best suited for the construction. In some instances it is advisable to make study casts and mount them on an articulator in order to design the case properly. The uncomplicated cases using wrought clasps and vulcanite, or any simple design, do not need a comprehensive study. The all gold and porcelain bilateral complicated cases should be given sufficient thought to insure satisfactory results. This can only be accomplished by the use of X-rays and study casts on which the operator may make an outline with definite consideration to the distribution of forces and the condition of the remaining teeth and the saddle areas.

Much thought and work has been devoted to the development of mechanical attachments for the maintenance of bridges and partial dentures in position. Some have stood the test of time and are still looked upon as a substantial means of support.

There are two, or possibly three, general groups of attachments—(1) the rigid, (2) the semi-rigid and (3) the non-rigid. The first named is largely used for removable bridges and rarely in extensive restorations for partial denture. Mechanically they usually consist of two parts—namely (male and female). The construction of these parts when placed in proper relationship allow very little movement between saddle parts and the abutment teeth. Consequently, the greatest amount of force is thrown upon the abutment teeth and if there isn't a sufficient number, and properly placed, these teeth cannot long stand the strain. It is a rare circumstance where we find rigid construction in other than short removable bridges. The use of this particular type should be limited almost entirely to the short span case.

Where abutment teeth are broken down and necessity demands an inlay or crown, then some form of rigid attachment is indicated, providing the span is not too great. This then, becomes a part of the inlay or crown, and holds the appliance rigidly in position. Examples of this type of attachment are the Roach Nos. 2 and 3, and Chayes.

Since casting has become so popular, and technic simplified, a large percent of attachments are of the cast clasp type. This semi-rigid attachment has given very satisfactory results, especially when properly designed. Metals have been compounded and alloys formed with the result that many alloys are available today which gives satisfactory result when cast. The greatest complaint against this form of attachment is that it causes premature decay about the attachments. Experience over a number of years has shown this condition to be absolutely true. Teeth do decay about clasps and the cause is constant. It is not mechanical

abrasion in most instances, but rather the accumulation of food particles on the inner surfaces of the clasps. The fact teeth decay is no justification for not using this form of attachment. Sooner or later decay occurs somewhere around and about any form of restoration.

The design of the bar cast clasps by Dr. F. E. Roach during recent years has done considerable to eliminate the possibilities of decay underneath or about cast clasps. Many advantages can be had with this form of attachment. If statistics were available they would show that the greater percentage of partial dentures constructed are maintained in position by the use of cast clasps. There are two conclusions because of these facts. First, the ease with which these attachments are made, and second, the complete satisfaction to both patient and operator.

One of the first forms of attachments to be used in this particular field of dentistry was the bent wire clasp. Since its inception there have been cycles of popularity and cycles in which very little was said about this particular method of holding appliances in position. But the fact remains, conditions are such in many instances that the wrought or wire clasp would be the logical means of anchorage. This is especially true in mandibular restorations where remaining teeth are not firm nor properly positioned. Metals which are combined to make this wire have been greatly improved, and as a consequence, if properly designed can be rather rigid, and in many cases a very satisfactory means to support partial dentures. With these three different types of attachments it is possible to construct either removable bridges or partial dentures of any varied design. The question for the operator to decide is which will under the existing conditions give the patient the greatest satisfaction over the longest period of time.

Impressions and the most accurate way of obtaining them has been under discussion for many years. Hardly is there a year passes without additional technic being added to our present knowledge. Many different materials and technics have been proposed and adopted, and the profession have been led to believe that at last a dependable material with a foolproof technic has been developed.

It would seem at times as though some of these advocates are more concerned about the mercenary aspect than they are about the scientific.

At present there are several materials on the market which can be relied upon to give positive results, providing definite dependable technic has been observed.

Plaster of paris will produce the actual condition of the mouth in all its details, but unfortunately remaining teeth that are rotated, tipped, or in such a position as to produce a distinct undercut necessitates the fracturing of the plaster in order to remove it. The process of assembling these small pieces is both tedious and inaccurate, consequently a cast from such an impression may not be an absolute reproduction of the natural condition. There is one other objection to plaster of paris and that is, tissue compression is quite impossible with this material. Where teeth are parallel and there is no need for compression of tissue, plaster of paris in

mass is indicated. Under any other circumstances it would be advisable to use some other material, or a combination of plaster with modeling compound. Modeling compound alone and in mass has proven rather disappointing because of the changes that may occur unbeknown to the operator. There is always that possibility of a draw or pull if the modeling compound isn't thoroughly chilled. If, however, there are no undercuts, modeling compound can be depended upon for accurate reproductions. The accurate and logical way to use either of these materials is to adopt the sectional method of taking impressions. The combination of modeling compound and plaster of paris will give positive results when handled correctly. The former gives compression of tissue and obtains small confined areas while plaster of paris can be relied upon for the remaining part of the impression. It is customary when taking impressions to use plaster of paris in mass, break it out and send the pieces to the commercial laboratory where it becomes their obligation to produce a satisfactory finished case. This method is neither fair to the laboratory man nor the patient. However, it is surprising the number of cases which do apparently satisfy the patient made under above mentioned conditions. There is no credit due the dentist in most instances, but rather it's the ability of the laboratory man and the willingness of the patient to tolerate a makeshift partial. A patient having never worn a partial denture before is in no position to judge the accuracy of the fit; however, *they* can appreciate the esthetics.

During the past few years there has been given to the profession two materials acting largely the same and the manufacturers claiming wonderful results: Dentocoll and Ke-2-ol. While giving similar results the technic of preparation varies somewhat. Dentocoll preceded Ke-2-ol, but because of complicated technic Ke-2-ol supplanted to a small degree the former. The theory and actual clinical experience of these materials have proven very satisfactory when used where indicated. The proper place to use either of these materials for taking impressions is a typical tooth born case, where the remaining teeth are to support the partial denture. Extensive saddle areas with compressible tissue is best obtained by the use of modeling compound in conjunction with plaster of paris, or one of the disappearing plasters. Under certain conditions the combination of modeling compound and dentocoll will give very accurate impressions.

The technic for this method is as follows: Treat modeling compound as usual and force into position and remove before chilling, this is done to allow for the withdrawal before modeling compound is hard. Chill thoroughly out of the mouth and relieve amply in all constricted areas, after which surface heat the compound and force back into position. This will give compression of tissue under the compound. Remove from the mouth, mix Dentocoll, place in these relieved areas and force back into position. The Dentocoll will reproduce the undercuts, constrictions, and allow the withdrawal without distortion. This method gives all there can be hoped for in a partial denture impression. Mass impressions without previous thought

and preparation usually are disastrous.

If the proper tray is selected and made not only to fit, but to confine the impression material, the first obstacle is avoided. Selection of impression material which is indicated, and finally knowing what constitutes an accurate impression, helps considerably. Details in the mouth should be evident in the impression, especially surfaces and areas that are to be utilized for support of the partial denture.

It is necessary that our attention be called to the treatment of impressions. Is it *not* the same *old* story in the same *old* way? The answer is yes, provided you are satisfied with the same *old partial* in the same *old* way. Well, but you answer I have been building partials for years and am perfectly satisfied to go along as I have been going. To this circumstance the answer is obvious. Complete satisfaction is a dangerous condition for any individual, especially when dealing with scientific or engineering problems.

Treatment of impressions may, or may not, play a very important role in the construction of a partial denture, but some adherence to details are necessary, for instance, relief over bony areas and gingival areas of abutment teeth, selection of a separating media which will not occupy too much space, gum up, or cause the cast to be porous.

Pouring models which have density and smoothness is best brought about by the use of a mechanical spatulator. The force and speed make it possible to use more powder in relationship to the water content, thus producing a denser, harder and smoother cast. The greatest danger in pouring casts is the possibility of trapping air. To avoid this a camel's hair brush is dipped in the thinner part of the mix and teased into a distal part of the impression and, gradually adding until there is a complete thin coating all over the impression. This is blown out with the compressed air and the process repeated, followed with vibration on either a lathe, or a vibrator especially built for this purpose.

Models for partial dentures may be of plaster of paris, artificial stone, or one of the materials used for direct casting technic.

Much has been written and many courses given with emphasis upon the all gold partial one-piece casting.

There is no doubt as to the efficiency of these properly constructed gold cases, but to admit they are the only types of partial denture shows lack of judgment, or mercenary tendency. A large per cent of the profession have been successful with the combination of wire clasps and vulcanite. Patients wearing this type have been loud in their praises for such constructions. There is no doubt that vulcanite can best be handled on artificial stone models. Condensites seem to give good results with plaster of paris as model material. Whereas, the all gold partial model may be one of several different materials dependent upon technic the operator follows.

It has become the custom in nearly all prosthetic work, that the dentist takes the impression, obtains the bite and with the shade accompanying, sends it to a laboratory where the appliance is completed. This has been especially true in partial denture work. There is no objection to this method of procedure providing satisfactory results are obtained.

Some of the better laboratories run up master models for these one-piece castings on which adjustments can be made without going to the mouth. This obviates considerable work which previously had been necessary at the chair.

It is not necessary to give the technic of waxing and setting up teeth for vulcanite partials, for this again is done by laboratories. However, under present conditions this particular part of the work may be done by the dentists themselves.

The selection of teeth for partial denture is important from two angles; first, esthetics, and second, proper occlusion. It is not unusual or uncommon to see teeth used which are the incorrect shade, shape and not in proper position. Under ordinary conditions nothing is so noticeable as one or two teeth badly placed, and an off shade. This is especially true of missing anteriors. Teeth should be selected which give the maximum service with the minimum pressure on abutment teeth, and the occlusal surfaces ground to allow equal distribution of these forces.

The all gold partials have necessitated a special tooth as to form, but there are a number of reliable makes on the market today which give excellent service. The only requirement is the selection of the teeth best suited for the case. If care has been exercised in the choice of teeth the waxing up becomes simple and there is little danger in using excess gold in areas which cannot be of any service mechanically or esthetically.

One of the advantages of this particular type of construction is the reduced weight and bulk over the vulcanite construction. It isn't necessary to cover the same areas in order to obtain the necessary strength. Thickness of wax should be governed by stresses brought upon the different parts of the appliance. Saddle areas are usually made of 26 or 28 gauge wax, while lingual and palatal bars, straps, extension stabilizers, indirect retainers are made of sufficient thickness to give necessary support to these parts.

Casting has been a very anxious moment since its beginning and there still remains the question of doubt especially when casting these large cases. Many factors enter into this particular part of the technic; some which can very easily ruin the case. Most all brittle castings are the result of contamination from one of several sources. The principal and most frequent one is the oxidation of the alloy. This is caused by improper flame in melting the alloy. Long continued use of the blowpipe cannot help but have a serious result. Neither is it advisable to use the extreme hot flame such as the oxy-acetylene, for this burns out the low fusing metals and changes the alloy. The flame most suited for melting dental alloys is the gas and compressed air combination. There are other sources which may cause poor castings in addition to the one mentioned, such as carbonization, foreign materials which may be incorporated during investing, burning out and casting. In most instances the high heat method is followed; consequently, the case should be thoroughly dried out and no attempt made to make the casting until the entire investment and flask show a marked redness. At this point the flask is removed from the oven and casting made as soon as possible so as not to allow the temperature to be greatly reduced. When the cherry

redness has disappeared from the crucible and the excess gold, the entire mass can then be immersed in water. When the investment has been removed the case can be heated slightly and dipped in acid —this should be repeated several times as this will give added strength to the case.

Finishing and adjusting can be almost entirely done outside the mouth, providing the operator has secured a master model to which all adjustments can be made except the final occlusal relationship; which *must* and *should* be done in the mouth. Stones and disks should be used to go over the entire surfaces including the areas which approximate the tissues. If proper care has been observed during the waxing up very little stoning will be necessary and most of the finishing can be done with fine stones, disks, burlew disks, tripoli and finally polished with rouge. The cementing of the porcelain teeth should not be done until the finishing and adjusting is complete, and then the final grinding on the occlusal surfaces bring about the natural occlusal relationship.

Many of these large bilateral partials cause anxiety to the operator and some bewilderment to the patient because of the difficulty encountered in getting them into position and removing them from the mouth. However, after a little experience there is no need for worry by either dentist or patient. True, most of these cases go into position with difficulty and are removed with the same trouble.

It is necessary to assure the patient that this same difficulty will not be encountered after wearing and removal several times. The patient should be shown the proper method of inserting the partial as well as its removal. Soon they will become confident and feel assured that they can handle the case without the assistance of the dentist.

Any artificial substitute, whether fixed or removable, should be given proper care and it should be the business of the dentist to instruct the patient along this very important line. One of the strong points in favor of a removable appliance is the fact that both teeth and appliance can be kept clean. The patient should be impressed with the importance of this feature and told to brush, or rinse the mouth and appliance after each meal. They also should be encouraged to leave the case out of the mouth at night in order to give teeth and tissue an opportunity to rest. Nature never intended *these* restorations, but has been extremely tolerant with these substitutions, and all the aid we can give should be done. Proper patient instructions must not be neglected if we wish the appliance to be successful. This is just as important as the construction of the appliance.

A definite routine should be suggested for keeping the mouth and appliance in healthy condition. If this is done the patient soon will form the habit and when this is accomplished there is little to worry about so far as keeping the entire oral cavity clean.

The patient should not conceive the idea that when the case is completed and the mouth comfortable that ends the dental service. On the other hand they should be impressed with the necessity of seeing the dentist at regular intervals even though nothing radical may be wrong with the appliance. A close

watch of the abutment teeth is absolutely necessary and the occasional readjustment of the attachments.

The laity have been educated to visiting their dentist twice a year, so it takes but little effort to have them return regularly to the office.

The question of repair, or additions, has some influence upon which design and what material is best suited for the particular case. The gold removable bridge, or the partial denture can be repaired simply, economically, and the patient need not be without the case for any length of time. The loss of one or more additional teeth does not require the case to be discarded and a new one constructed. Any number of teeth may be added to the appliance by taking an impression with the case in position—remove the porcelain teeth, wax up the missing parts and cast against the original and soldering before removing from the flask. Occasionally, cast clasps and bars break, especially when subjected to great strain, or perhaps flaws in the casting. If the relationship hasn't been lost the parts can be placed together and soldered. On the other hand it may be necessary to make a new clasp and solder in position.

In summarizing removable bridges and partial dentures the fundamental rules to be kept constantly in mind are the following: Number, position and condition of remaining teeth and investing structures, accurate impressions and dependable models, selection of proper attachments and design, materials selected to give the best service and, finally, proper instructions as to care of appliance and remaining teeth.

DISCUSSION

Dr. W. A. McKee, Benton, Illinois. Mr. President, Dr. McNeil, Ladies and Gentlemen: The subject "Partial Denture and Removable Bridge" is a very large assignment, yet Dr. McNeil has covered it in a very masterly and comprehensive way. It is a pleasure to note that the essayist has emphasized the anatomical, physiological and hygienic requirements in partial denture prosthesis and has laid much stress on the idea that in the construction of partial restorations we are not dealing with a mechanical problem alone. It is only when the various aspects of the problem are properly allied that we can expect to produce results that will measure up to the highest standard in comfort, length of life, and efficiency.

Dental literature today is replete with articles dealing not only with the subject of design and retention but also with the materials employed in the construction of partial dentures and the metallurgist has given us a metal well suited to the needs of every requirement. A knowledge that the teeth and their condition bear an important relation to the health of the individual, demands a thorough knowledge of the biologic factors involved in the use of any artificial structure in the mouth of the patient.

Dr. McNeil has very properly stressed in his paper the value of a thorough examination and correct diagnosis, including radiograms of every case. It is just as important for the dentist to make a thorough investigation of the foundation on which he plans to build a superstructure as it is for the architect to plan the foundation for a building. It is very probable that many cases would reveal the necessity for full dentures instead of partials if a more careful diagnosis were made. It is also probable that our counsel in advising our patients to prolong the day of arrival at full dentures bears a very close analogy to the young practitioner, who, when

asked by his patients if he could cure pyorrhea answered "No, but I can prolong it." It is not my intention to have you believe that I would eliminate the partial denture, as it is a very valuable type of restoration when thoughtfully planned and skillfully executed. Its use should entirely supplant that of the long span fixed bridge. We should remember, however, that in spite of the utmost care in partial denture cases that some damage is bound to occur in time owing to the added work the remaining teeth are expected to do. I know of no department in dentistry requiring a greater maturity of judgment, a more consummate skill or a finer appreciation of esthetics than in partial denture and removable bridge work.

It is gratifying to note that with the advancement in the past few years along the line of construction, design, casting and impression materials and the gold alloys adapted to the work, that a great deal of doubt and skepticism that once prevailed has now been largely overcome. Both denture and clasp design have been greatly improved. The writer began the construction of a removable bridge in 1917 using the technic and materials suggested by Dr. Norman B. Nesbitt, of Boston, in a paper published in Items of Interest in the August number of that year. Clasp designs at that time were far from perfect. The clasps encircled one-half to two-thirds of the crowns of the teeth and proved to be very destructive on the enamel of the teeth as well as offering too much leverage on insertion and removal. Improved alloys now make possible the construction of dentures and clasps which are ideal as to bulk and offer the maximum in retention. Our own experience and observation leads to the conclusion that the cast clasp made with due consideration of the alignment of the supporting teeth, the amount of coverage of tooth structure and the reciprocal action to be obtained, make it superior to any other form of clasp construction.

We heartily agree with Dr. McNeil in what he says in regard to the new elastic impression materials and believe they possess qualities whereby very accurate impressions of cases may be obtained. It is necessary, however, to thoroughly familiarize one's self with the technic before the best results are secured. The well known sectional method using modeling compound and plaster also produce very accurate casts.

In closing this discussion let me say that the mouth should be prepared in every way to secure the most successful appliance possible and we will do well to remember that each step is only a portion of the operation to place the whole masticatory apparatus in the most efficient and healthful condition.

LEST YOU FORGET

69th Annual Meeting of the
Illinois State Dental Society
at
PEORIA
May 9 - 10 - 11 - 1933

THE DEVELOPMENT OF THE JAWS AND TEETH AND THE ABNORMALITIES COMMON TO CHILDREN*

By ERNEST MYER, M.S., D.D.S., *Chicago*

IN THE CONSIDERATION of the development of the jaws and teeth, an understanding of all the changes which take place after conception is necessary; but as time does not permit this, we must content ourselves with briefly covering the important points.

The mandible is derived from the first viceral or mandibular arch. Its first sign of appearance in the mandibular arch being the formation of Meckel's cartilage in each half of the arch. Meckel's cartilage while being the forerunner of the lower jaw is not transformed into bone as typical endocondral bone formation. Bone of the mandible is laid down at a center in each half, from dense connective tissue by typical membranous bone formation.

The upper jaw is derived from the Maxillary process of the same viceral arch, and from the frontal process, which forms the premaxilla. The premaxilla carries the germs for the four incisor teeth while the maxilla has germs for the cuspids and posterior teeth. At the time of the formation of the premaxilla and maxillary parts the nasal and oral cavity are in communication. This communication is broken only when palatal shelves extend mesially from the two maxillary processes and from the premaxilla, uniting to form the palate. Ossification of the upper jaw begins slightly after that in the mandible, and is of the membranous type.

The first sign of tooth development begins about the 34th to 38th day of embryonic life. The development consists of a thickening of the oral epithelium in the region of the future dental arches. The epithelial massing which occurs, extends into the supporting mesenchymal tissue in two bands, the labial and buccal band, forming the lip furrow band (which will ultimately separate cheek and lip from gum), and the lingual band forming the dental lamina. Ten localized swellings occur on the lingual of each dental lamina and are the forerunner of the ten deciduous tooth germs. With growth of the dental lamina the tooth anlage increases tremendously and assumes a bell shape. Inside of this bell shaped tooth germ organ is found mesenchymal tissue, which is gradually being condensed and is known as the dental papilla. With rapid increase in the tooth germ a bud is given off of the lingual of the dental lamina at its junction with the deciduous tooth germ. This bud is destined to become the permanent tooth germ, altho it remains dormant until the time for it to undergo development. Development of the permanent tooth is similar to that of the deciduous tooth. The buds for the permanent molars are given off of the dental lamina directly from the continuation posterior to the decidu-

*Read at the Annual Meeting of The Illinois State Dental Society, Springfield, May, 1932.

ous set. The dental lamina then undergoes degeneration.

With a breaking up of the dental lamina, a fibrous layer is laid around the entire developing tooth germ, and is known as the dental follicle. This is the forerunner of the peridontal membrane, cementum, and alveolar bone.

The enamel organ at this stage is composed of four layers. It has an outer cuboidal layer of epithelium known as the outer enamel epithium. The next layer is that of the stellate reticulum, consisting of stellate epithelial cells widely separated by fluid. Next is the stratum intermedium consisting of flat cells, and finally the columnar cells one layer deep, lining the coronal portion of dental papilla. These are the amelioblast or ganoblasts, the forming cells of the enamel.

Hertwig's sheath is a derivative of the enamel organ which penetrates the mesenchym beneath the crown and delimits the root. As the tooth germ becomes larger and grows occlusally, Hertwig's epithelial sheath remains relatively fixed. This sheath is necessary in order that the odontoblast may form the dentin of the root. Later Hertwig's sheath degenerates forming the epithelial rests which are found in the periodontal membrane, the function of which is unknown.

In order that enamel may be formed, the stellate reticulum gradually disappears, leaving the outer enamel epithelium in contact with the stratium intermedium. When this has occurred the organ is known as the united enamel epithelium. The ganoblasts or inner layer of cells of the enamel organ form the enamel, each cell forming its particular enamel rod from the dento enamel junction to the periphery of the crown, and at right angle to the dento enamel junction. After the enamel rods are fully formed, the ganoblasts disentegrate forming a cuticle which may become calcified, and this adheres closely to the enamel even after the tooth fully erupts. The balance of the enamel epithelium forms the secondary cuticle. When all the enamel rods are fully formed, the enamel crown is fully formed, and will not change in shape or size except thru carries, wear, or other destructive agents.

The dental papilla, or that tissue lying within the enamel organ at the time the dental follicle is formed, consists of embryonic mesenchymal cells. The peripheral cells of this tissue become tall and columnar, and are known as odontoblasts. Dentin is the first of the dental hard tissues to form. It is a more homogenous mass than the enamel and it is always formed first at the tip of the cusp in cusp teeth, and at developmental centers in blade teeth. As the odontoblast recedes from the dento enamel junction it leaves a protoplasmic projection known as Tomes fibre, covered by Newman's sheath, the whole being known as the dentinal tubule.

The tip of the cusp in cusp teeth, and the germinal centers in blade teeth, are the centers in which dentin and enamel are first formed. This leaves several isolated centers of development in each tooth. As long as these isolated centers are not joined by calcification, the crown of the tooth is enabled to expand and grow between centers, thus increasing the size of the crown.

Connective tissue surrounds the tooth

germ before its eruption. Cementum is deposited on the dentin of the root previous to the tooth's eruption. Cementum is the product of the cementoblasts. They arise from the cells of the connective tissue which is to become periodontal membrane covering the root portion of the tooth. The cementoblasts form a matrix in and around the fibres of the periodontal membrane. The matrix thus formed, also undergoes calcification, forming the cementum.

Each tooth germ is enclosed in its bony crypt, the wall of which is formed by a perforated layer of bone known as the cribiform plate. The walls of the crypts are braced against each other, and against the lingual and buccal cortical plates. With an increase in size of the tooth germs there is a corresponding increase in the size of the bony crypt, with the resulting increase in the size of the jaws.

The crypts are not all at the same level at any time. With their movement occlusally, a wedging force is brought into play with contributes to a tremendous increase in size of the arch. If by any chance something should throw this eruptive force out of line, a malocclusion is bound to result, for the jaws are robbed of this stimulation.

There are many theories of eruption, but as yet not one has definitely and universally been accepted. It should be considered as a vital process with all the phenomona of life attending its course. Some time after the sixth month of life, the central incisors have reached the stage of their development, which causes them to move occlusally and absorb the roof of their crypts, allowing them to come to the surface of the oral cavity. When the tooth breaks thru, it comes under the stress of the tongue, lips, and the force of sucking. With these stresses placed upon it, alveolar bone and cementum are formed by the cells of the periodontal membrane. This continued stress causes the bone of the edge of the crypt wall to be built higher and higher, and thus the alveolar process comes into being.

The incisors and cuspids of the deciduous denture are much narrower and smaller in all dimensions than their successors in the permanent set. The deciduous molars however, are somewhat wider mesio-distally than the bicuspids which are to succeed them. The crowns of the deciduous teeth are nearer square and their roots are set definitely under the crowns. The occlusal grooves are not as deep as in the permanent teeth, making the cusps less prominent. The interlocking of the cusps is not as definite as in the permanent denture. The function of mastication in the deciduous denture does not depend so much on the cuspal relationship as in the adult denture. All of these differences go to show that function in the deciduous denture is not such an important factor in the early development of the jaws.

The baby denture should be considered as attaining most of its development thru the agency of inherent growth. By inherent growth we mean that urge to grow and conform to a pattern which has been laid down in the inheritance. A little later we have the gradual substitution of functional forces for those of the inherent forces, function playing a more important role

with each subsequent yearly increase in age.

At birth the face is about one-eighth of the entire head, and in the adult it amounts to about one-half. The face must of necessity grow four times faster than the brain case. In the new born, the eyes appear about the center of the face, and in the adult, they appear about the upper third of the face. This transformation comes about mainly thru growth in the jaws. At birth the maxilla is very shallow, the roof of the mouth almost flat, with no alveolar crest. Since there is practically no maxillary sinus, the roof of the mouth is separated by very little bone from the floor of the orbit and nose. The nose grows very rapidly, the orbits relatively slower as they are large at birth, and are almost adult in size at four years of age. To accommodate for this relatively rapid growth of the nasal cavity, the floor of the nose grows down and the walls grow laterally. It is impossible for the nose to grow up as the roof of the nose is the base of the cranium. The roof of the mouth must of necessity also descend. The space between the mouth and the orbit is taken up by the gradually enlarging maxillary sinus.

The descent of the palate and increase in height of the face, can partly be credited to this increase of nasal and sinus capacity, augmented by atmospheric pressure and the inherited growth pattern.

Along with the descent of the palate, the tooth germs in their growth and expansion, cause an added increase in the heights of the maxilla. Then when eruption of the teeth takes place, alveolar bone is laid down. Alveolar bone is formed only with the eruption of the teeth, and disappears when they are lost, and can be considered as present only with teeth. The appearance of alveolar bone plus the height of the crown of the teeth go to make up the rest of this increased maxillary height. The maxilla at birth, does not exist farther distally than about the place where the fifth tooth will be when in position. Therefore there must be a tremendous increase in anterior posterior growth of this bone. Part of this growth takes place thru the expansion of the tooth germs, and resulting enlarging of their crypt walls. The growth of the first molar germ causes an added growth to take place at the distal of the maxilla thru the agency of surface addition. The second molar germ lies dormant until about five years of age, when it begins to develop. The growth it causes can only take place at the posterior portion of the maxilla by surface addition. The same is true for the third molar. Thus we see that the growth of the maxilla takes place posteriorly and laterally thru the growth and development of the teeth.

The pterygoid processes of the sphenoid bone abutts against the distal of the maxillary and palatine bone. The pterygoid process grows downward and forward, carrying these bones anteriorly with it. The posterior portion of the palatine process of the maxilla as well as the posterior portion of the body are very fast growing centers, which carry the maxilla still farther forward. These combined growths all force the maxilla in a downward and forward direction.

The mandible at birth is low and flat, with the ramus nearly in a straight line

with the body. The anterior border of the ramus joins the body in the region approximately where the fifth tooth will be when developed. With the development and eruption of the teeth, there is a tremendous increase in height of the body brought about by the development of the teeth, by the growth of the alveolar bone, and by the increase in crown height. Mandibular growth occurs thru surface addition on the lateral aspect of the bone with a corresponding absorption on the lingual of the body and ramus. To gain space in the body for the development and eruption of the three permanent molars, the ramus of the mandible must be moved distally or the body must grow anteriorly. It has been shown thru the works of Duhamel, Hunter, Humphry, and others, that there is surface addition upon the posterior border, with absorption on the anterior border which causes a distal movement of the ramus with the body coming forward with the face. This growth gradually makes room for the first, then the second, and finally the third permanent molars.

The ramus meanwhile is undergoing a needed increase in its height. There must of necessity be an added increase to its height, because with the eruption of the teeth, there is an increase in height of body of the bone. This increase in height of the ramus is gained thru addition at the neck of the condyle, and thru the fact that the angle of the mandible gradually becomes more acute.

During all of this facial development, the cranium is growing both antero-posteriorly and laterally, and since the face is attached to the cranium by bony union, it follows, that it will be affected. The cranium may be considered as the base upon which the facial growth takes place, and the interaction of the two leads to a downward and forward movement of the maxilla away from the skull.

The mandible is attached to the cranium thru the temporo-mandibular articulation. As this is not a bony union, the mandible can be considered as floating in space. It is suspended from the cranium by ligaments and muscle. The mandible must grow to keep pace with the increase in height and width of maxilla, and with increase in the gap which is present between maxilla and cranial base. This means that the mandible must have a tremendous growth. In addition it must take care of the functions of respiration, deglutition, mastication, speech, and it must act as one of the supports of the hyoid bone which in turn supports the larynx and throat musculature. This means that a tremendous drag is placed upon the mandible in its effort to keep pace with the maxilla. Nature compensates partly for this in her inherited pattern which she tries to follow. Occlusion however, acting through the locking of the teeth is the force which maintains the equilibrium between maxillary and mandibular growth. The mandible receiving no help from the growth of associated parts, has to depend on function to a large extent for its stimulation. The maxilla is able to carry its program of growth to completion through its connection with the skull. This makes it the pace setter of growth of the face. The mandible in order to keep up with the maxilla is literally dragged thru the locking of inclined planes of teeth, which in

turn cause bone growth to complete its development.

When we come to consider the functional forces that constitute the development, one of the most important will be the musculature. Let us briefly review some of the significant groups.

The tongue is composed of a mass of muscle, the greater part of it being made up of intrinsic muscles having the power to alter its shape and form. It is suspended or maintained in space thru the agency of four paired sets of extrinsic muscles arising from cranium, hard palate, mandible, and hyoid bone. This mass of muscle, the tongue, can be compared to scaffolding in the building of an arch way. Around the anterior and sides of it are placed the teeth, and it helps to maintain their arch arrangement.

Around the arch lie the lips and cheeks which are structurally composed of muscle tissue. These muscles are arranged in definite paired bands. These paired bands of muscle derive their origin in the form of a ring, around the mouth, from the maxilla and mandible. The bands converging anteriorly, make up the bulk of the lips. Their origins are posterior to their insertion. Each of these muscles have their definite functions, but they do not act independently. Rather they work in groups to give the various facial expressions. The muscles of the lips lie labial to the teeth, and in their contraction press against them. This pressure antagonizes the force of the tongue and keeps the contacts tight. The true muscles of the lips end at the cuspid region, but a muscular band contributed by the buccinator continues backward from this area in contact with the buccal teeth. At the posterior end of the dental arch, this band crosses the alveolar process to reach its final attachment in the pterygo-mandibular raphe, which runs from the pterygoid process to the mandible. This raphe forms the anterior boundary of another band like muscle, the superior constrictor of the pharynx, which runs from this origin to the basilar part of the occipital bone, and the fascia of the vertebral column. This makes a band of muscle on the labial and buccal of the arch tied to the occipital bone and vertebral column. With every contraction of these muscles, as in the act of deglutition which occurs at two to two-and-one half minute intervals, the buccinator and superior constrictor contract causing a backward force to be exerted on the denture.

With eruption of the first permanent molars occurring some time about six years of age, another factor in the development of the jaws is brought into play. The first permanent molars, both upper and lower, have their roots slanting toward the distal. That is, the distal portion of the crowns are lower than their mesial portion, and when they erupt in their position in the jaws, the roots slant to the distal from a plane running thru the cusp of the crown. When jaws are closed and the molars engage each other, the resultant of force gives an anterior push at the distal of the second premolar. This force keeps the contacts tight in the entire denture and is the only force operative in the denture which will make the entire denture travel forward. This force is known as the anterior component of force which becomes operative after eruption and locking of the first perma-

nent molars. With eruption and locking of the second molars, this force is augmented. The third molars because of their shape and root form, contribute very little to this force.

Another force brought into the picture comes from the act of mastication. This consists in the mandible being brought laterally thru the action of the external pterygoid muscle of the opposite side. The jaw is closed thru the internal pterygoid, masseter, and temporal muscles, causing the bolus of food to be crushed, sheared, and shredded by the cusps and fossa of the teeth, as the lower jaw is brought back to its position of rest. The denture in the act of mastication can really be considered as two separate grinding mills, as only one side of the denture is at work at any given time. When one side is at function the opposite side is out of function, and without occlusal approximation. This working of the cusp of the upper and lower teeth causes a continual tipping and straightening action upon the buccal teeth, with the tongue acting as a mass to prevent lingual movement. This continual tipping and straightening of the buccal teeth, altho it be extremely minute, backed by the mass of the tongue, causes the buccal teeth to slowly migrate buccally. This migration continues until the force is balanced by the muscle band of the buccinator on the buccal.

The shape of the teeth is an inherited quality. The teeth when once formed never vary in form, except thru the agency of wear, caries, or other destructive processes. The shape and size of the deciduous teeth apparently has no bearing upon the shape and size of their permanent successors. In fact, narrow and small deciduous teeth may be followed by wide and large permanent teeth, or the reverse may be found with any variation.

Permanent teeth have been classified according to the shape of their crowns to fall within three groups, namely, the square, ovoid, and the tapering types. The square type is a short chunky square tooth. Its cusps are low with inclined planes nearly flat, the distance between the cusps wide, and its contact points flat and broad. This type of tooth, because of its build, allows for a more horizontal function similar to the herbivora. Since the cusps are wide apart and their height relatively low, it allows for a wider excursion of the mandible in function. With a wider excursion of the mandible in function, migration of the buccal teeth is more pronounced, causing the shape of the arch to be broader.

The muscles of mastication acting over a wider lateral movement are shorter and thicker. The maxilla and mandible due to lateral extension of arch form are wider, causing the general appearance of the face to be nearer square.

The tapering type of tooth has a longer crown, the cusps are higher and closer to each other, the contacts are round and ball-like. Function on this type of tooth can best be performed in a more vertical direction, which is similar to the chopping action common to the carnivora. The vertical function causes an increase in height of maxilla and mandible because the stress is more in a vertical plane. The musculature of this type becomes long and thin because it can best work in vertical plane.

The buccinator, because of this increase in height in maxilla and mandible prevents much buccal migration and helps make the arch form narrow and long. The maxilla and mandible being narrow and high, give the face a long and narrow appearance.

The ovoid type, because it lies between the square and the tapering type, causes the arch, jaw, and face to vary accordingly. Type is thus one of the modifiers of shape in the arch, jaws and face.

I have tried to show that the jaws and teeth which go to make up the denture are continually under forces which in the normal individual are perfectly balanced. The tongue through its mass of muscle tissue being the form around which the teeth are grouped. The teeth through their cusps, inclined planes, contact points meeting their neighbors and antagonists in a given definite way. The musculature of the lips and cheeks binding all together. The force of mastication, deglutition and respiration helping to develop the jaws. All these forces are balanced in the normal individual to make a perfect denture and face.

With any perversion of any of these forces or factors, the entire denture is thrown off balance to make a balance to fit the conditions. Any force other than a normal force thus brought into play, gives a deformity commensurate with the force at play.

I have tried to bring out the picture of the maxilla as the "pace setter" in the development of the two jaws. The mandible requires function at a relatively early age to attain its fullest development. The mandible must be stimulated through the interdigitation of the teeth in order to gain its fullest growth. Now if the child at the time of the eruption of the first permanent molars keeps its mouth open through habit, inflamed tonsils, nasal obstruction, or thumb or finger sucking, the mandible loses this stimulating force so vital to it, with the result that there is apt to be a difference in growth rate between maxilla and mandible, the mandible being left behind. This results in a distal locking of the lower molars, the rest of the permanent teeth erupting, must of necessity, erupt distal to normal, causing a Class II deformity.

The tongue is an organ which is under the influence of the will, and because of that it leads to a variety of deformities. Tongue thrusting consists of forcing the tip of the tongue against the lingual of the anterior teeth. This act is accomplished through the genio-glossus muscle exerting an extra force labially against the upper and lower teeth, causing the lower anterior teeth to be tipped labially, making a larger cuspid to cuspid arc, causing the upper anteriors to space and tip labially. If good lateral and vertical function are present, the buccal segments will move anteriorly, and may or may not collapse lingually, depending upon the amount of lingual support. The resulting deformity is one in which the lower incisors have a distinct labial tilt, the upper anteriors have a labial tilt and space with the buccal segments anterior to normal.

If at the time of loss of deciduous incisors and eruption of the permanent teeth, the tongue is placed between the erupting incisors, it acts as a mass preventing the full eruption of the incisors causing an open bite. The balance of

the teeth come into occlusion, but the anteriors never can erupt to their normal extent. Instead of the anteriors any given point may be the site of the tongue acting as a cushion between the upper and the lower teeth, causing the teeth in this area to be out of function.

Lip biting or sucking as a habit, generally consists of placing the lower lip between the upper and lower incisors. The deformity which results from such a continued habit is one where the upper anteriors are displaced anteriorly and tipped labially going into supra-occlusion and have extensive spacing. The lower anteriors depending upon the amount of force exerted, may or may not be displaced lingually. If the habit is started early in life and is continued so that the jaws are kept apart at the time of eruption, the patient may have with all of these other deformities a Class II relation of the jaws.

Any external abnormal pressure applied to the teeth generally causes a collapse in the area in which the pressure is applied. Sleeping or leaning habits falls within this classification. The habit of a child placing its hand or fist under the face while asleep, may lead to a deformity, depending upon where the hand is placed, and whether the jaws are opened or closed. If the child sleeps with its hand in the region of the maxilla under the zygomatic arch, there will be a marked lingual collapse of the upper buccal segment on that side of pressure. If the jaws are closed along with this habit, the lower teeth will likewise show this collapse. Leaning the face upon the hand during the day may also cause a collapse in the arch, depending entirely upon where and in what way pressure is applied.

A child sucking one or both thumbs over a period of time causes the upper anterior teeth to protrude. The vault looks high because of the narrowing and because of thumb pressure. The lower incisors may or may not have a lingual lean, depending upon the amount of pressure exerted and lingual support of the tongue. If the habit of thumb sucking be broken before six years of age, Dr. Lewis has shown, no harm will result to the permanent denture, even though a typical malformation be present in the deciduous denture. If the habit persists during the period of eruption of the first permanent molars, a Class II case usually results, because of the difference in growth rate between the maxilla and mandible through keeping the jaws apart in the performance of the habit.

The protrusion of the mandible whether through the act of imitation, the relief of sore tonsils, or in seeking a more comfortable rest position, if persisted in, will lead to perversion of the normal forces of occlusion. The lower jaw, when protruded, keeps the incisor and molar areas out of function, occlusion being present only in the bicuspid and cuspid regions. Since the lower incisors are without antagonists they go into supra-occlusion. The lips normally acting upon the upper incisors now act upon the lower anteriors, and give them a distal inclination, preventing the upper incisors from going to supra-occlusion. The molars because of differences in bone, the maxillary teeth move faster than the mandibular teeth. This protrusion then results in a shift of the

plane of occlusion. The normal plane is approximately parallel to the base of the mandible, but in this condition the plane passes from a high region in the anteriors to a low area in the posterior. With this position of the mandible, the tongue is kept at the floor of the mouth, thus depriving the arches of normal lingual support, resulting in a narrow palate and a lingual lean of the lower buccal teeth. The muscles of mastication attached to the ramus of the mandible, and when it is protruded, they exert a greater pull upon the angle of the mandible, with a result that the angle becomes more obtuse. The maxillary arch, because it is within the confines of the mandibular arch is held back from attaining its normal development. All of these factors go to make up a Class III deformity.

In conclusion I wish to bring out the point that many habits that children become accustomed to performing may result in an imperfect balance of the forces of occlusion. These abnormal forces in working upon the denture result in a malocclusion.

CATHODE RAY IN CANCER WAR

Two German scientists, who have hurled artificial lightning bolts of millions of volts to split the atom, will demonstrate how they have mobilized this energy in the treatment of cancer and tuberculosis.

Dr. Fritz Lange and Dr. Arno Brasch, "the atom-splitters," and Professor Ludwig Halberstaedter, cancer specialist, have invited 130 persons to the laboratory of the German General Electric plant for a demonstration of the "cathodic ray" in what they have announced to be "the termination of experiments with cancerous growths in animals."

At this demonstration they are expected to announce that the stage of treating cancer in humans with a cathodic ray ranging in power from 2,000,000 to 10,000,000 volts has now been reached.—*Universal Service.*

USE 2,500,000 VOLT BOLT TO TREAT CANCER

A charge of 2,500,000 volts of electricity was shot through a human body in a Berlin laboratory. The man who voluntarily subjected himself to this amazing experiment was near death with cancer, described as a "hopeless case." Scientists believe now his life has been saved.

The two German scientists who conducted the experiment, Professor Ludwig Halberstaedter, chief of the Berlin Radium Institute, and Dr. Stephen Beck, of the Berlin Institute of Cancer Research, declared they believed they had at last found a cure for cancer.

The electric charge, the greatest X-ray voltage ever created by man, was declared to be the equivalent to 100 tons of radium in treatment.

Professor Halberstaedter and Dr. Beck had until now conducted tests upon animals which they declared were 100 per cent successful.

The patient Heinrich Wanke, 55, shuddered as apparatus let forth four "explosions" in a darkened room.

DENTISTS BEMOAN LACK OF TOOTHBRUSH KNOWLEDGE

Ignorance of those folk who do not use a toothbrush regularly was lamented by 300 dentists attending the annual convention of the Alabama Dental Association.

Dr. W. S. Wilson, president, asserted that "in this enlightened nation of ours, it is estimated there are between 90,000,000 and 100,000,000 citizens who fall into this non-toothbrushing class."

THE BUREAU OF DENTAL ECONOMICS

LeRoy E. Kurth, D. D. S., *Chicago, Ill.*

A Bureau of Medical Economics was established in March, 1931, by the American Medical Association to study all phases of general economics that have a bearing on the practice of medicine.

The functions of the Bureau of Medical Economics are:

1. To collect, tabulate, study, criticize and prepare for publication and distribution data pertaining to the economics of the practice of medicine.

2. To furnish critical and constructive information and opinions by correspondence on the several phases of medical economics.

3. To encourage the adoption by individual physicians and medical societies of modern, sound, ethical business methods.

4. To urge medical schools to provide medical students with information concerning Proceedings of the House of Delegates of the A. M. A., The Eighty-third Annual Session (1932), the economics of medical practice, and an outline of essential business principles which should be incorporated early in individual practice.

5. To develop, ultimately, a consultation service with respect to medical business methods.

The Bureau will endeavor to collect data on the following phases of economics:

Capital investment in medicine.
Care of the indigent sick.
Collection methods and agencies.
Contract practice.
Costs of medical education—students' expenditures—complete cost.
County and State dues.
Dispensaries and clinics.
Distribution of physicians.
Distribution of medical facilities.
Evaluation of patient's ability to pay.
General insurance for physicians.
General investments.
Group practice.
Health and accident insurance.
Industrial medicine.
Instruction in medical economics (college and extension courses).
Malpractice insurance.
Medical fees.
Office plans.
Office systems.
Panel systems (of foreign countries).
Physicians' income.
Sickness financing.
Sickness insurance (compulsory and voluntary).
Sickness savings.
Sickness statistics.
State, County and municipal health department activities.
Thrift programs.
Workmen's compensation.

The functions of this bureau thoroughly cover all phases of medical economics, especially the collection of data. This part is very important because if the trend there of general economics is not known, no plans or schemes can be devised to combat these trends, if they are deleterious to the economic welfare of the individual practitioner. The physician being entirely immerged in his scientific practice can scarcely be expected to give the time that would be required to study out the general eco-

nomic situation in its relation to the practice of medicine. Consequently he made it his duty to have men appointed by the American Medical Association, who would be in touch with political and social movements of the time all over the United States, and the world, and make unbiased recommendations to him as to what course to follow if that movement would be harmful to him. If all the above facts were found necessary to obtain for the American Medical Association, are not these facts just as important for the American Dental Association to procure for its members?

The American Dental Association has as yet no such bureau. The average dentist, in most instances, knows only of economic happenings in his community. He knows little of what is happening in California or Maine, that may soon have a bearing on his future economic welfare if not informed and advised as to what course to take.

* * *

Resolution to A. D. A. on Dental Economics

At the May meeting of the Board of Directors of the Chicago Dental Society the following resolution was presented to them by a committee appointed for that purpose. The resolution was passed and the committee was requested to present it before the Board of Trustees of the American Dental Association at Denver.

Resolution

In recent years there has been a tremendous increase in the interest shown by dentists in the economic side of dental practice. The development of Dental economic programs and Study Clubs present striking evidence of this fact. Public interest in dental service is shown by the participation of industry, philanthropy and government in their establishment of dental clinics. Examples are the Endicott Johnson dental service to employees and their families, the Guggenheim dental clinic in New York and the Cook County dental clinic in Chicago, and many others. Dental and medical organizations, departments of health, and tooth paste manufacturers have developed informative programs on the importance of dental health which have increased the demand for dental care.

Recent estimates have shown that approximately seventy-five per cent of the people of the United States receive little or no dental service. This may be due to the fact that eighty-six per cent receive incomes under two thousand dollars.

The ability of our present organization of dental service to cope with the tremendous public health problem is questioned. In a number of European countries lay groups, governments and industry have made changes in the methods of supplying medical and dental service without the cooperation of the professions. The results have been unquestionably detrimental to the quality of the service rendered to the public.

Dr. Lyman Wilbur, Secretary of the Interior and Chairman of the Committee on the Cost of Medical Care, proposes as a fundamental principle that "the personal relation between physician and dentist and the patient must be preserved in any effective system of medical service."

The same situation which faced

Europe and which she has solved in a way that, in some respects, is detrimental to both the dental profession and the general public is facing us today and will continue to press itself upon us with ever increasing force until we, too, find some solution. Only the future will tell what that solution will be but at present it lies in the hands of the dental profession, in co-operation with other agencies, to mold and guide it.

In this scientific, fact demanding age dentists need authentic information on general as well as dental economics on organization and financing of dental clinics, on salaries of dentists employed by school board health departments, industrial and other clinics. The needs and interest of salaried dentists must be met by organized dentistry if their membership in the association is to be assured and retained.

We, therefore, recommend to the Board of Trustees of the American Dental Association that steps be taken to meet the present needs of the dental profesion as follows:

1st. That a standing committee on fact finding and economics be appointed.

2nd. That each state society be urged to create a committee on Dental Economics to receive and disseminate material and facts collected by the above American Dental Association committee so that intelligent and concerted action could be secured on any given economic problem.

3rd. That the Board of Trustees consider the idea of creating in the American Dental Association a section on Dental Economics to give the opportunity for informed group thought and discussion in the programs of its annual meetings.

Board of Directors,
Chicago Dental Society,
C. N. JOHNSON,
HAROLD J. NOYES,
JOSEPH G. WEIDDER,
HERBERT E. PHILLIPS,
BENJAMIN S. PARTRIDGE,
Chairman Special Committee

* * *

At the Memphis meeting in 1931, the House of Delegates recommended that the above resolution be turned over to the Board of Trustees for consideration. They appointed Dr. Brady to formulate a plan, which he did, but as yet nothing has been done about it. The reason for this delay cannot be perceived, for two important years have been lost wherein a large amount of economic data could have been amassed. Everyone concedes that we are in an era of great economic change, and the American Dental Association has very little data, with the exception of the Studies of the Committee on Dental Practice, with which they can expect to cope with the situation.

At the Buffalo meeting the expenditures of the Research Division of the Council of Dental Therapeutics was increased. In saying this I wish to cast no disparaging reflections upon the members or purpose of that committee, for it is an excellent undertaking; but I cannot see why it is more important to recommend drugs and accepted dental remedies than it would be to recommend proper procedures or present a plan to enable people with low incomes to come to dental offices to use these drugs.

I find by inquiry that the Board of

Trustees of the American Dental Association can inaugurate a Bureau of Dental Economics at their January meeting. It is my opinion that pressure should be brought to bear upon the Board of Trustees from the individual members of the American Dental Association to have this accomplished.

DENTAL HEALTH TALKS

There is an old axiom to the effect that the law does not take care of little things. In other words, it is supposed to function only when justice is demanded in matters of importance. The inconsequential affairs are presumed to adjust themselves. And while a fundamental idea of this kind may be all right in legal affairs, the application of such a principle to the ills of the flesh would be generally disastrous. In thousands of personal instances this has proved itself to be the fact.

For it is precisely the little things that call for immediate and expert attention. In many instances they are eloquently backed up by one of man's greatest friends —pain. However, too often the average person is likely to rave and rant because he is suffering, and at the same time entirely overlook the underlying and friendly purpose of pain. Consequently, instead of hearkening to its voice nothing much is done until the discomfort assumes proportions that can no longer be disregarded. For conduct such as this, there is absolutely no excuse. And the payment for such an unreasonable attitude is often of the most exacting type.

It can scarcely be expected of people who take a position of this kind, to be very careful about the little things that give no warnings at all. And indeed they blissfully go on their way, imagining that because their bodies seem to be all right, they are all right. How often this deduction proves to be false!

In this latter class fall many of the little things that affect the teeth and jaw. Lacking the brass-band features associated with acute diseases, many mouth conditions by way of enemy germs carry on their work so quietly that their presence is not even suspected. Like opera singers and actors, they do all their preparatory work "back stage"; then when everything is all set they put on the show. Moreover, box office receipts in terms of suffering and in physicians' and dentists' bills are likely to be 'way out of proportion to the enjoyment (?) offered.

The old saying that "great oaks from little acorns grow" never had a better application than to the silent little conditions in the mouth that develop into the painful, noisy big ones.

The wise person will therefore not take any chances with the little things by ignoring them—even though he does not know they are present. To discover such matters is the dentist's work. Your job is to see that he gets the work to do, at least two times annually. Thus, respect the little things.

HAVE A HOBBY

Twenty thousand men, women and children commit suicide in this country every year. Dr. Louis L. Dublin, statistician of the Metropolitan Life Insurance Company, says more men than women commit suicide, and lack of character or mental maturity is largely responsible for self-destruction. The recent increase in suicide is not entirely due to the depression. There has been a suicide increase every year since 1925, without exception.

Lack of interest in life accounts for many suicides. About forty years ago a New York newspaper discussed throughout one summer the question, "Is Suicide a Sin?" While the discussion lasted the number of suicides diminished remarkably. Those with thoughts of suicide joined the discussion and had something to make life interesting.

Bootleg whiskey has increased suicide. A young woman "professional tap dancer" fell out of a fourth story window in New York, fracturing both legs, skull and spine. Two men explained to the policeman that there had been an "all night drinking party."—*Arthur Brisbane.*

• EDITORIAL •

IT HAS BEEN A HARD ROAD

Yes, we have journeyed over the bumpy road of yesteryear. Tired, footsore, courage arrested, faith frayed but not lost. We have bent under lowering clouds, but have we not also caught a glimpse of multi-hued sunsets that foretold a fairer day to be? Down the road we may have heard the restful vesper song of bird as night crept on, and the next morning opened its gates with the wild and exultant warbling of the thrush.

It cannot all be somber. The forces that bespeak in no uncertain measure the return of hope, and cheer are still predominant although veiled from the eye. Of this we are assured; the road *has been traveled;* we have closed our vision and no backward glance is justified. It matters not now the stress of the receding days; they cannot be recalled. The tragedies, heartaches, failures, all that have filled the past are as the water that has passed over the dam. This we know: this new opportunity this new year, has its future filled with possibilities; but we must put on the armor of faith and fight, fight the enemy within ourselves against despair, knowing that out of it all will come a purification that will enhance our future days.

So, men of Illinois, we send out this New Year's greeting to you with a deep sense of the meaning of the words that the year ahead be a *genuine new year,* a *good new year* in which heart and mind will take precedence over false values, that out of the abundance of Nature's storehouse will come that for the healing of the nation.

"A Flower unblown: A Book unread:
A Tree with fruit unharvested:
A Path untrod: a House whose rooms
Lack yet the heart's divine perfumes:
A Landscape whose wide border lies
In silent shade 'neath silent skies:
A wondrous Fountain yet unsealed:
A Casket with its gifts concealed:—
This is the Year that for you waits
Beyond To-morrow's mystic gates."

THE MAY MEETING

It is with a fine feeling of optimism and assuredness that even now we are learning of the activities taking place in Peoria for our 1933 meeting.

We do not know how other states build for their annual meeting, but can easily surmise that they too work at fever heat. Concentration on an objective by a widely

separated group and yet united as to purpose, can result in only one thing, success.

The men over the State are sensing the necessity of getting together, and there in convention assembled fight the forces of disunion and disruption from any and every source. We are all aware of the necessity of readjustment, but how it must come about is an unsettled question at this time.

One thing is true: pulling in antagonizing directions will never bring unity. If dentistry is to maintain itself and be a continued force for good, then it must remain bigger than the individual. This is a trite saying and true; but when the insistencies of personal ambition start to scale the heights, there will then arise a condition that is inimical to the greatest good.

Every member in every component throughout the state, be it south to the Kentucky line or north to the shores of Lake Michigan, should take upon himself this bounden duty to be present at Peoria for the Annual Meeting.

No section, no group, is greater than the whole. The people through the daily papers are being educated away from the individual, or private dental office. The dollar [illegible] to them, or at least to many, far too many, is the only avenue of approach when [illegible]th need attention. And we, sitting supinely and often dejectedly in our offices offer up our complaints instead of attending our meetings in ever strengthening numbers, which in itself serves to carry conviction to the laity that organized dentistry is endeavoring to serve them efficiently and healthfully first, and not relying on woodcuts and false figures to induce them to care for their teeth.

We have, it seems, lost our belief in centralized effort, and the State meeting if well and enthusiastically attended will rebuild for the betterment of health and ourselves as well.

CORPORATION PRACTICE

DENTISTRY'S BATTLE OF ARMAGEDDON

The battle plain lies before us. The forces of the enemy are assembling. Long have we heard in the distance, rumblings of warfare and placidly have plodded along in a false security, saying to ourselves, it is not for us. It may reach medicine, but *we* are safe against the invaders—until now, we face the testing.

We have been sounding a sour note in this journal for months, sending out a warning for preparedness; have urged the individual dentist to seek sanctuary in the Parent Body and there give of his blood and sinew to help keep him a *free man* and not a truculent slave to the whims and lowered standards of a group whose highest aim is the accumulation of dollars, no matter under what name they display their activities. Did we say "a sour note"? Yes, it is sour to the ones who amidst the plenitude and thoughtless living of the past failed to see the handwriting on the wall. Failed to see that the profession which has sustained them needed their earnest support.

Organized dentistry, organized medicine, if you will, both of which stand out and have stood for a self-sacrificing, altruistic service have been calling for a

rallying under the banner of wider duty, in which there has been no confusion of intent. The malevolence of the indifferent, the slogan so prevalent of "Let George do it," are here now to mock us, and we see the enmy drawn up for battle and conquest.

Why stand we here idle? Are we craven cowards that we will turn our heels to the foe, or capitulate and take refuge under the flag of the enemy? Is our profession no more to us than that? Has it contributed to our confusion, or has it endowed us with a God given desire to plant our banner where the opposition may know that so long as strength of mind, purpose, and determination remain, we will fight for the eternal entrenchment of our ideals?

There has long been one crying in our wilderness of indifference saying, "Prepare ye the way!" And yet, he has been heard, if at all, with a cynical smile, or the belief of the uninformed that there could be no war. But men of Illinois, there IS war! war that will test your staying powers; war that will ruthlessly destroy your professional individuality; war that, unless speedily arrested, and the enemy put to flight by legal means, will cause this circumscribed torment of the past two or three years, seem like a summer's vacation in comparison.

The fastening of corporation practice of the healing vocations on the public by laymen, in part or whole has, as we see it, but one basic idea and that is, not the amelioration of disease per se, but the gratification of a desire for money. *That* rule of practice reduces itself to a hasty service and one in which thoroughness has little to do with diagnosis.

We have foes within and without. These days in which the curtailment of income has become a serious matter, finds some practitioners weakening to the siren call of a "hook up" with this method of practice. Even now do we hear the statement made that some of our Chicago Dental Society members have allied themselves with this latest phase of dentistry.

This is the time that dentists the country over should seek safety under the wings of the American Dental Association. The strength of unified action will then be able to foster and bring about such laws, with the forceful cooperation of the State Societies, that the menace to standardized and proven dentistry will not find lodgment.

We stand at Armageddon: and if the battle is lost to us, we can look to a breaking out in every city of moderate thousands to those of largest population, a medico-dental, so called low priced clinic, that will empty the private offices, and our colleges, the admiration of the world, will become as so much brick and stone.

Has the picture been painted too black? Do we "see as in a glass darkly"? We wish we could spread sunshine but the clouds just seem to hover over our best hopes. We need a working solution, a Moses who will and can lead us out.

In England there is a man called the "gloomy Dean," who in his capacity of a religious leader, fashions not things of clay, but speaks out for things as they are. While his philosophy of life is perhaps somber, yet his wisdom is reaching the hearts of men.

Shall we find *that* man or men in our profession whose innate sense of understanding, fraught with sincerity will divine the needs and provide the way out, in order that these Frankensteins of corporate practice, panel, social and insurance dentistry be made servants of Organized Dentistry and we not be cringing suppliants at their *thrones.*

There is in the making a new Illinois Dental Practice Act, the first draft of which appears in this issue, which has for its goal the safeguarding of Dentistry and the protection of the people whom we serve.

Is it an idle, platitudinous statement, we make when we speak of serving the people? If dentistry has degenerated to the levels lower than that conceived in the minds of the cultured, inspired men whose memories we honor today, then should we stamp on each piece of work, the sign of the dollar. At least we will then be honest and not misleading as to our position.

There are some who still believe, however, that dentistry has an ennobling influence, who strive to make it better and more elevating even though material sustenance must be acquired in its practice. But if we all scatter like frightened sheep, our strength is dissipated and we have not that left with which to fight.

The tocsin of war has sounded. Shall it be capitulation or shall it be as was so splendidly expressed by Dr. Wm. H. G. Logan in his address to the Fifty Year Members at the last state meeting: "If tonight any of you should meet the spirits of the founders of the dental profession, tell Hayden and Harris that the majority of the dental profession still favor the promotion of dentistry as an independent profession; they still favor caring for the worthy poor without price, and they stand opposed to the dental dole in any form in which it may be presented, and in the name of these causes we still give war."

TROUBLED WATERS

The following quotation from the Dental Outlook for January, 1933, page 12, has this to say of a perturbing subject:

> At the meeting of the Oral Surgery Section of the Second District Dental Society of the State of New York, a component of the American Dental Association, official representative of organized dentistry in the United States, held on Thursday evening, November 17, 1932, at the U. S. Naval Hospital, Brooklyn, N. Y., Captain Charles S. Butler, M. D., U. S. Navy, Commanding Officer, U. S. Naval Hospital, New York, in his address of welcome, gave a brief résumé of the history of dentistry as a branch of the medical profession from its earliest days up to the present time. He concluded his remarks by announcing the recognition of American dentistry by virtue of its expansion. He informed those present of the change in the designation of the dental service of the U. S. Naval Hospital in Brooklyn to embrace its broader aspects, which will henceforth be called the *Stomatologic Service* in accordance with the following order:
>
> U. S. NAVAL HOSPITAL
> New York, N. Y.
>
> 16 November, 1932.
>
> *Hospital Order No. 100.*
> SUBJECT: DENTAL SERVICE, CHANGE IN DESIGNATION OF.
> 1. With the approval of the Surgeon General of the United States Navy

and effective November 17, 1932, the title "Dental Service" heretofore employed in designating the Dental Department will be changed to the "Stomatological Service" and the Chief of that service will be designated as the "Chief of the Stomatological Service."

2. The term "Dental Service" where it may appear in organization tables, Hospital Orders, Hospital Memoranda and otherwise, will be changed accordingly.

C. S. BUTLER,
Captain (M. C.), U. S. Navy
Commanding.

No doubt, in time, no one knoweth when, some of us will accomplish the Herculean task of remembering the new names which have gracefully usurped those of the old.

We have Peridontia, Periodontium, Periodontoclasia, Exodontia, Apicoectomy with its variations, and no doubt many others, in the process of change, will come to plague us. It is safe to assume when any of these diseases or methods of practice are mentioned it will require rapid thinking to differentiate. Very much like the two pies a mother baked and, to distinguish them apart, cut in the top crust of each the letters T.M.: one stood for " 'tis mince" and the other " 'tain't mince."

So now we are confronted with two dental pies, each with a similarity of contents and yet marked T.M. on the surface.

It is quite interesting were it not provoking to conjure up the reason for the change. The name of our profession and work, Dentistry, is time honored and well defines our service. It is known all over the world as that part of human endeavor that has for its field the teeth and associated parts of the mouth. It seems we need no other mark of distinction.

Stomatology, a word rather abstruse, is not a well defined term to the laity. 'Tis true the sources of public information have revealed by easy stages our scientific appellations, and people glibly speak of pyorrhea alveolaris, osteomyelitis, œdema, cellulitis and others, as if to the manner born. It may be also true that some of the profession in advanced positions, sensing the fact that the common people (?) are but a few jumps behind them in erudition, seek to make a cloud-screen and thereby set up again the magical and mystical incantations of one-time priests and sooth sayers for the healing of the people.

What we need in order to establish a prestige is not a new name for our activities, but one based on honor and conscience, one in which people are served for the renewal of values in their lives and not for position or pelf of those who serve.

All glory to the man or men who out of a God-given gift of superior knowledge and application of the same, bring to a waiting world the panaceas which all are seeking. Such are benefactors. A change in nomenclature such as has been ordered is an arbitrary one, and, as we see it, of no practical value.

Dentistry, as commonly applied, not only pertains to the teeth but the tissues in and about the month. Stomatology or Stoma (its generic name is from the

Greek word meaning mouth) which also must in our work include the teeth, so why the change?

Unless the Navy dictum is to place more implied association to the so-called parent profession—Medicine—thereby raising the dignity of the Dental Department to the social status of Medicine, in which someone otherwise might flout the rule of diplomatic precedence at functions, it is hard to understand the change.

Democracy of mind should always take precedence over the frills of aristocracy; in fact, in this country aristocracy has no real meaning except it be that form that reveals itself in unadulterated patriotism.

Let us hope that, unless it becomes apparent that there is a scientific reason in which the words "Dental Service" or "Dental Department" have ceased to exercise the proper function, the order will be rescinded for the good of Dentistry at large.

A Denial

Regarding the ordered changes as expressed above, our President of the A. D. A., Dr. Dittmar wrote to Surgeon-General C. E. Riggs, United States Navy, for a fuller explanation of this published order emanating seemingly from the Naval Hospital at Brooklyn, New York, and we quote that part of the letter pertaining thereto:

"January 11, 1933

"Dear Dr. Dittmar:

"I have just received your letter of January 9, 1933, inquiring concerning the use of the term Stomatology in place of the term Dentistry.

"I am very glad to be able to reply that this Bureau has made no such change. I am informed that in a dental department at one of our hospitals the sign Dentistry has been replaced by Stomatology. If this be a fact it is a small matter considering that it is only one instance among the large number of places at hospitals and Navy Yards where we have dental departments. I shall take this opportunity to assure you again that the dignity, ethics, and progress of the dental profession are very dear to me and that I shall do everything in my power to promote them.

"Also I am very appreciative of your taking this matter up with me and can assure you that no steps along the line you indicate have ever been considered by me.

"With the kindest personal regards, I am

"Very sincerely,

"C. E. Riggs,

"The Surgeon General United States Navy."

There seems to be a small fly in the ointment of this letter, kindly as it appears.

We ask the question as to whether it is a small matter that our identity as an important and independent profession be submerged to the whims and personal ambitions of a few in a favored section.

Referring again to the word Stoma, we find its definition to read (Webster's Collegiate Dictionary, 4th Edition, 1932, page 932) "Any of various small mouth like openings especially of the lower animals, among the cells of a serous membrane, or in the epidermis of plants."

It is a rather difficult thing not to fall into a facetious vein and say that the Middlewest dentists have always confined their labors to the human animals, known generically as man, which of course includes many women and children, and also that our social and professional duties have never allowed us, what must be a pleasurable occupation, of gazing into the mouth-like openings of the epidermis of plants. We can sense the joy of prying open those many small mouths, by recalling the demoniac glee that filled some of us when we finally succeeded in opening *one* small mouth sufficiently to slide in a No. 2 mouth mirror.

It may be possible that our objections to the use of the words "Stomatological Department," in the light of this unassailable definition are too severe. Or is it other than a remote idea that mayhaps the old order changeth and the Navy Department is being assimilated by the Department of Agriculture. That being the case we bow in deep humility that we had the temerity to raise the question.

DR. WM. H. TAGGART—BENEFACTOR

It is timely and befitting that pause is made this month and that a suitable expression of appreciation is publicly made in attesting the debt dentistry owes, and never has or can fully pay, to Dr. Wm. H. Taggart.

It is twenty-six years ago, in 1907, the fifteenth of this month, that the first real applicable method of casting a gold filling was presented to the world. We use this in the broadest sense, for truly has the world been made better dentally by reason of this man's superior vision and intense work. Nowhere in the civilized world but what knows of Dr. Taggart and his gift to humanity. Innumerable teeth would have been consigned to the forcep had not his genius shown the way to longer and better preservation.

Ill advice, misunderstandings, acrimony, jealousy and other attributes of human frailties often tend to cloud the real value of a man's work. Be it said here and with emphasis that to the dental profession his contribution stands unparalleled and deserves a place in the Hall of Fame with that other God given achievement —anesthesia.

Today, after more than a quarter of a century, a definite proof of the value of his labors, the basic principles evolved by him, still remain unchallenged. Methods of approach have changed; improvements here and there naturally follow, but the original ideas are being carried out, to the betterment of each dentist's practice and the dentist as well.

Let us then, as dentists of Illinois, ascribe to him our admiration and appreciation for what he has done for dentistry and for the distinction he has brought to the State of Illinois. We can do no less.

Shall we not, as the Oral Hygiene so nicely suggests, write him a personal letter of appreciation? It is such a little thing to do—very much like the simple words, "thank you"—and yet how these seeming little acts rub out the clouds of despair and make the heart to sing. DO IT NOW. The address is 25 East Delaware Place, Chicago, Illinois.

William H. Taggart, D. D. S.

Calvin Coolidge
1872-1933

The Last Summons

Once in the night his father came to him,
His age-worn father, Testament in hand,
And laid on him, amid the lamplight dim,
The countless burdens of a mighty land.
Out of the rugged hills of home he strode,
To carry on beneath a nation's load.

And now his Heavenly Father comes to him
To lay a soothing hand upon his brow
And lift his spirit from the shadows grim
Into the light. There is no burden now.
His toil is done, his care and sorrow cease,
And may his rugged soul abide in peace.

—GEORGE E. PHAIR
In Herald Examiner

Bon Voyage, America's American

SOCIETY ANNOUNCEMENTS

THE 69TH ANNUAL MEETING AT PEORIA

Plans are rapidly shaping themselves into completion for the 69th Annual Meeting of the Illinois State Dental Society, to be held in the city of Peoria, May 9-10-11, 1933.

"Better Dentistry" is the slogan and the Committee is working hard to make this one of the greatest Dental Meetings ever held in the State.

We are particularly fortunate in procuring leading men in both the Medical and Dental Professions—men who enjoy an international reputation in their particular line of work.

Papers will be presented on new phases of Dental and Medical Science and we also have a large and attractive array of clinics.

We will also have the pleasure of having a paper presented by one of our own members on "The Corporate Practice of Dentistry." The essayist is well qualified to present and discuss the subject, for he has spent no little time in gathering his data. This is a live subject at the present time and should bring out considerable discussion.

The Banquet to be held on Wednesday evening will be one of the outstanding features of the meeting, the speaker being Dr. Morris Fishbein, Editor of the Journal of the American Medical Association. He will have a message of great interest to the profession.

The session will open Tuesday morning, May 9th, at 9 o'clock and be continued until Thursday noon.

All members of the American Dental Association are invited to attend this meeting.

P. D. B. IDLER,
Chairman Program Committee.

STUDY CLUB ROSTER

In response to numerous requests for lists of available speakers or teachers to conduct Study Clubs throughout the State, the Committee wishes to present the names of the following men selected from the three Dental Schools of Chicago.

These men are teachers of their respective subjects and well qualified to conduct post-graduate classes. The Study Club requesting a program by one or more of these men would be expected to pay their traveling expenses plus any other small costs incidental to the preparation for the meeting.

CHICAGO COLLEGE OF DENTAL SURGERY

Children's Dentistry
Dr. Corvin F. Stine
Dr. Lon W. Morrey

Histopathology of the Teeth and Their Surrounding Structures
Dr. Rudolf Kronfeld
Dr. Ralph Fouser

Pathology and Treatment of the Dental Pulp and Peridental Membrane
Dr. Edgar D. Coolidge

Dental Radiography
Dr. Earl P. Boulger

Operative Dentistry
a. Cavity Preparation
b. Gold Inlay Technic
c. Pulp Changes Occurring Under the Various Fillings
Dr. Warren Willman

Modern Fixed Bridge Attachments for Teeth Containing Vital Pulps—Porcelain Jacket Crowns
Dr. Robert MacBoyle
Dr. Harold W. Oppice

Full Denture Construction
Dr. Rupert Hall
Dr. Elbert C. Pendleton
Dr. Henry Glupker

Partial Denture Construction
Dr. W. I. McNeil

Local Anesthesia, Exodontia and Surgical Preparation of the Mouth for Dentures
Dr. P. G. Puterbaugh

Dr. Harry B. Pinney
Dr. George C. Pike

UNIVERSITY OF ILLINOIS

Education; Social Relations; Histology
Dr. Frederick Bogue Noyes

Pathology; Oral Surgery
Dr. Frederick Brown Moorehead

Pulp Canal Therapy; Treatment of Peridontal Membrane
Dr. James Roy Blayney

Operative; Inlay
Dr. Victor Theodore Nylander

Orthodontia
Dr. Burne Olin Sippy

Crown and Bridge; Porcelain
Dr. Stanley Daniel Tylman

Full Denture
Dr. John Sanford Kellogg

Partial Denture
Dr. W. Howard Kubacki

Orthodontia
Dr. Allan G. Brodie

Histology; Endocrines and Teeth; Calcium Metabolism and Teeth
Dr. Isaac Schour

Relation of Mouth Conditions to Gastro-Intestinal Tract
Dr. Robert L. Ladd

Bacteriology; Caries
Dr. Robert George Kesel

Medical and Dental History; Dental Clinics
Dr. Nell Snow Talbot

Children's Dentistry
Dr. Elsie Gerlach

Local Anesthesia
Dr. Henry John Droba

Oral Surgery
Dr. Louis W. Schultz

Operative Dentistry
Edward J. Krejci

Drugs and Their Uses
Dr. Edward Charles Wach

Oral Surgery; Mouth Tumors
Dr. Eli Olech

NORTHWESTERN UNIVERSITY

Oral Surgery and Anesthesia
Dr. F. W. Merrifield
Dr. C. W. Freeman
Dr. S. W. Clark
Dr. J. E. Schaefer

Surgical Treatment of Pyorrhea
Dr. G. R. Lundquist
Dr. H. G. Ray

Operative Dentistry, Particularly the More Recent Technic of Gold Inlay Casting
Dr. D. H. Snyder
Dr. W. A. Hocker

Crown and Bridge Work
Dr. L. D. Sayre

Full Dentures
Dr. E. L. Richey

LOCAL COMMITTEES FOR MAY MEETING

RECEPTION AND INFORMATION

Paul W. Clopper, 3030 S. Adams St., Peoria, *Chairman*

C. N. Newlin — E. W. Bennett
Edward B. Gurney — Dudley G. Smith
L. E. Stewart — K. C. Edmonson

LADIES' ENTERTAINMENT

Wilfred S. Peters, 637 Jefferson Bldg., Peoria

HOTELS AND RESERVATIONS

O. P. Wiltz, 418 Jefferson Bldg., Peoria

BANQUET

R. L. Graber, 609 Jefferson Bldg., Peoria
Guy L. Sandy

PUBLICITY

Wm. A. Johnston, 615 Jefferson Bldg., Peoria

STEREOPTICON

L. F. Tinthoff, 531 Jefferson Bldg., Peoria
A. L. McDonough — Wallace Peters
E. H. Mahle

GOLF

C. E. Chamberlain, 633 Jefferson Bldg., Peoria
L. E. Stewart, 103 N. Madison St., Peoria

TRAPSHOOTING

C. D. Hermon, 617 Jefferson Bldg., Peoria

PSI OMEGA FRATERNITY

O. B. Litwiller, 431 Jefferson Bldg., Peoria
E. E. Hoag

XI PSI PHI FRATERNITY

C. E. Bollinger, 316 Peoria Life Bldg., Peoria
C. N. Newlin

DELTA SIGMA DELTA FRATERNITY

L. F. Tinthoff, 531 Jefferson Bldg., Peoria
A. L. McDonough

The above named local committees are in full function to assist in putting on one of the most enjoyable and profitable meetings in the history of the Illinois State Dental Society. They are all workers, experienced in committee work, and invite every dentist in Illinois to "Come and bring a friend."

WM. A. JOHNSTON,
Local Publicity Committeeman.

ST. LOUIS UNIVERSITY DENTAL ALUMNI REUNION

As has been the custom in the past few years, the members of the alumni of the St. Louis University School Dentistry will again feature lectures and clinics at their annual reunion.

The lectures and clinics will be illustrated with interesting specimens and slides and will be given by well known and prominent alumni.

The meeting this year will be held in the University gymnasium, 3672 West Pine Boulevard, on Friday, March 31st, and Saturday, April 1st.

PUBLICITY COMMITTEE.

CHICAGO DENTAL SOCIETY

The regular monthly meeting of the Chicago Dental Society was held at the La Salle Hotel, December 13, 1932.

The Public Service Committee is actively sponsoring a program of dental examination and education among the Boy Scouts of Chicago, as well as in the public schools by volunteer dentists of the branch societies, wherever the principal of the school requests such survey.

A special group of the Dental Economics Committee on November 16th presented valuable data to the Shannon Congressional Committee relating to the Federal Government having increased its dental service to war veterans, thus creating unwarranted competition with private practice. A resolution of protest to the United States Congress regarding this governmental activity was unanimously passed.

The Dental Relief Commission, having received $12,000 from the Emergency Relief Commission of Cook County, is now prepared to take care of approximately 1,000 patients each month.

All active members, upon payment of their 1933 dues, will be awarded a fine membership certificate, also indicating "component of Illinois State Dental Society and American Dental Association." In this manner the public will be enabled to easily recognize the ethical practitioner and the dentist can discuss the unprincipled practices of the unethical men without offense or fear of competition from any of that group. Dr. Ert J. Rogers, Professor of Prosthetic Dentistry and head of the Crown and Bridge Department of the University of Indiana Dental School, read a very comprehensive, practical paper entitled: "Fundamentals of Fixed Bridge Construction."

The following brilliant clinical program was presented:

1. Fundamentals of Fixed Bridge Construction.....Ert J. Rogers
2. Tooth Preparation for Bridge Attachments.....Stanley D. Tylman
3. Completed Cases Showing Stress Breakers, Baked-on Root Tips and Saddles.....Loren D. Sayre
4. Cavity Preparations and Castings for Bridge Abutments and Piers (precision castings) and Pontics .....W. D. Speaks
5. Porcelain Jacket Crowns. Preparation and Completed Crowns, Showing Use of Stains.....J. M. Robinson
6. Fixed Bridge Abutment Pieces. Stressing Conservation of Tooth Structure (demonstrated by means of models and patients)..... .....Harold W. Oppice
7. A Variety of Pontics for Fixed Bridges and Stressing the Factors of "Cleansibility" in Short Bite

Cases (demonstrated with models and patients).....Frank P. Lindner

8. Esthetic and Sanitary Porcelain Pontics for Fixed Bridges.....Arthur G. Nelson
9. The Principles of Cavity Preparation for Fixed Bridge Abutments.....Franklin G. Conklin
10. Anterior and Posterior Fixed Bridge Attachments for Vital Teeth.....Guy R. Churchill
11. A Variety of Types of Bridge Abutment Pieces, Including the Telescope Crown—Its Uses and Abuses.....O. W. Silberhorn
12. Diagnosis of Cases Where Crown and Bridgework Is Indicated with Reference to Increasing the Vertical Dimension, Employing the Spherical Principle of Occlusion and Explaining the Use of the Monson Instrument. (Today a great percentage of the cases of deafness is due to a shortening of the vertical dimension, resulting in a trauma of the tympanic plate and inner ear from condylar encroachment.....Frank H. Voorhees
13. One-Piece Cast Pin Inlays and Cast Cores for Porcelain Jacket Crowns.....R. E. Groetzinger
14. Pontic Constructions—Anterior and Posterior.....Willis J. Bray
15. The Adaptor Principle in Fixed Bridge Construction.....H. Spiro
16. Crown and Bridgework During the Deciduous Period.....Harold C. Hutchinson.

I. W. COHN,
Associate Editor.

RESOLUTION

Whereas, the Government of the United States, through its various agencies, particularly its Veteran's Bureau, renders dental service to veterans of the World War designed to cure dental diseases and correct deficiencies and deformities not incurred in line of military duty and

Whereas, such practice constitutes competition with private practitioners of dentistry throughout the country which has been shown to be inimical to the welfare of taxpayers and the dental profession, and

Whereas, The American Dental Association at its 1932 meeting in Buffalo, New York, took official cognizance of this grave menace, and

Whereas, since such recognition of this problem by the American Dental Association, the Chicago Dental Society, through its Committee on Dental Economics, has uncovered important new evidence bearing on the question of the unfair practice of dentistry by the Federal Government; be it *Resolved*, that the Chicago Dental Society, in regular session Tuesday, December 13, 1932, voice its most vigorous protest against government encroachment upon the rights and prerogatives of private practitioners of dentistry and request of the Board of Trustees of the American Dental Association that that body use its power and influence to secure legislation by the Congress of the United States which will effectively correct the condition complained of in this resolution, and be it further

Resolved, that copies of this resolution, together with the new evidence previously referred to, be sent to the following persons: The President, Secretary and Chairman of the Legislative Committee of the American Dental Association and to the Editors of the official publications of the Illinois State Dental Society and the Chicago Dental Society for publication.

For the Dental Economics Committee,

EMIL J. AISON,
Chairman Special Committee.
M. D. K. BREMNER, *Chairman.*
JARSLOV RUND, *Secretary.*

WINNEBAGO COUNTY DENTAL SOCIETY

The regular meeting of the Winnebago County Dental Society was held at the Woman's Club, Rockford, Illinois, December 14, 1932. Dr. C. L. Daniels of Aurora, State Dental Supervisor, gave a very interesting paper on "Vincent's Infection" and told in detail the data obtained

by the state department's new Research Bureau.

The newly elected officers are as follows: President, Dr. A. A. Hoffman; vice-president, Dr. P. C. Howland; secretary and treasurer, Dr. Fred L. Mead, all of Rockford, Illinois.

The newly elected member is Dr. Robert L. Jackson of Rockford.

Committees selected to conduct the year's activities are:

Program Committee—Drs. H. L. Johnsen, Frank A. Weld, Clyde C. Cole and E. J. Clothier.

Board of Censors—Drs. M. L. Hanaford, Perry Plummer and L. K. Minshall.

Membership Committee—Drs. H. E. Rust, A. B. Culhane and V. L. Heath.

The January meeting was held at Rockford, Illinois, the 11th, 1933.

FRED L. MEAD, *Secretary.*

SANGAMON-MENARD-LOGAN COUNTY DENTAL SOCIETY

The regular meeting of the Sangamon-Menard-Logan County Dental Society was held at the Leland Hotel, Springfield, Illinois, November 10th, 1932. Dr. Henry Glupker of Chicago, Illinois, gave a very interesting paper on "Rebasing of Full Upper and Lower Dentures," using lantern slides to illustrate the technique. A splendid motion picture of impression technique for full upper and lower dentures was also shown.

The next meeting was held December 8th, 1932, at Springfield, Illinois.

ST. CLAIR DISTRICT DENTAL SOCIETY

The meeting of the St. Clair District Dental Society was held at Belleville, Illinois, November 16, 1932. Dr. Harry McFarland of Kansas City, Missouri, gave a paper and clinic on "Surgical Eradication of Pyorrhea." Dr. Sam P. Katz of St. Louis, Missouri, gave a clinic and paper on "Lower Dentures." Dr. L. H. Daniels of Aurora, Illinois, gave a paper on "Trench Mouth." The exceptionally good program made it a very well attended meeting.

The newly elected members are: Dr. V. U. Flannery, Dr. G. O. Creath and Dr. J. R. Mulconnery of East St. Louis, and Dr. A. D. Schilling of Belleville.

The next meeting will be held at Okawville, Illinois, March 30, 1933.

J. M. COLLINS, *Secretary.*

FOX RIVER VALLEY DENTAL SOCIETY

The December meeting of the Fox River Valley Dental Society was held at the Baker Hotel, St. Charles, December 21, 1932. A very interesting talk was given by Mr. Byard Smith, an attorney of the Medical Protective Co. of Fort Wayne, Ind., on "Malpractice" in all its phases.

OBITUARY

Charles Grant Bacon, D. D. S., was born on a farm near Christman, Illinois, January 12, 1870—died December 18, 1932. Attended Wabash College and Chicago College of Dental Surgery, graduating in the Class of 1900. Practiced from 1900-1902 in Chrisman, Illinois. From 1902 until his death in Newman, Illinois. He was a Life Member of the Illinois State Dental Society, having joined through the Eastern Illinois component in 1905.

He leaves to mourn his going a widow, two daughters and a son.

THE SPIRIT'S RESERVE

There is in each of us
A greater, finer potency
For doing good
Than we have ever sounded;
We all can be
Far better in our ways,
More kindly in our deeds,
And higher in our aims,
Than we conceive.
For each within him bears
The image of his Maker;
With that reserve,
The spirit has no limits
Of splendid aspiration.

Your Invitation

The Illinois State Dental Society will hold its Sixty-ninth Annual Meeting in Peoria, Illinois, May 9, 10, 11, 1933.

President Patterson and the officers and committees hope to make this an outstanding meeting and as a member you are asked to assist.

The Clinic Committee wishes at this time to extend to every member an invitation to prepare a table clinic for this meeting, either as an individual or in a study group.

These clinics play an important part in the general scheme of meetings and everyone has some useful, practical procedure in his practice that may well be passed on to the other members.

Plan now to prepare your clinic.

Please fill out the blank at the bottom of this page and return to any member of the Clinic Committee.

CLINIC COMMITTEE

A. E. Glawe, 519 Safety Building, Rock Island, Chairman
R. W. McNulty, 386 S. Kenilworth Avenue, Elmhurst, Director of Lecture Clinics

A. H. Sohm, Illinois Bank Building, Quincy
F. A. Stewart, Girard, Illinois
T. A. Rost, 305 Durley Building, Bloomington
Louis W. Schultz, 25 E. Washington Street, Chicago
Henry Glupker, 224 East 109th Street, Chicago
W. E. Mayer, 636 Church Street, Evanston
Walter J. Palmer, Sterling, Illinois
Arthur L. Roberts, Aurora, Illinois
F. J. Fehrenbacher, Will County Bank Bldg., Joliet
S. E. Dudley, Benton, Illinois
Howard A. Moreland, Cairo, Illinois
C. R. Hough, First National Bank Bldg., Belleville

Date .....

I will present a clinic on Thursday, May 11, 1933, at the Illinois State Dental Society Meeting at Peoria, Illinois.

The title will be.....

I will need the following equipment:.....

.....

Signature .....

Address .....

SIXTY-NINTH ANNUAL MEETING

Illinois State Dental Society

PEORIA, ILLINOIS
May 9, 10, 11, 1933

PROGRAM COMMITTEE

P. B. D. Idler, 55 East Washington Street, Chicago.

CLINIC COMMITTEE

A. E. Glawe, 519 Safety Building, Rock Island, *Chairman*
R. W. McNulty, 386 S. Kenilworth Avenue, Elmhurst, *Director of Lecture Clinics*
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F. J. Fehrenbacher, Will County Bank Building, Joliet
S. E. Dudley, Benton, Illinois
Howard A. Moreland, Cairo, Illinois
C. R. Hough, First National Bank Building, Belleville

COMMITTEE ON LOCAL ARRANGEMENTS

R. C. Willett, 535 Jefferson Building, Peoria, *Chairman*

R. L. Graber, Peoria
E. D. Geiger, Canton
Wilson H. Hartz, Peoria
D. B. Clymore, Washington

COMMITTEE ON EXHIBITS

C. Carroll Smith, 111 N. Frink Street, Peoria, *Chairman*

James R. Welch, Peoria
Ralph S. Sullivan, Peoria
O. P. Wiltz, Peoria
E. J. Rogers, Peoria

Headquarters:

PERE MARQUETTE HOTEL

Plan Now to Attend

The New Life Members—1933

Bandy, C. W. Moline.
Bayne, R. S., Henry.
Brown, L. G., Danville.
Carroll, W. P., Streator.
Carruthers, G. C., Springfield.
Cordick, C. H., Chicago.
Cruise, J. P., Chicago.
DeReimer, A. E., Chicago.
Devlin, William, Chicago.
Dewey, Herbert C., LaGrange.
Dyblie, J. H., Joliet.
Eisenstaedt, Joseph, Chicago.
Flanagan, L. H., Chicago.
Gill, John Hunter, Chicago.
Hayes, Harold H., Chicago.
Hickman, C. W., Danville.
Hill, H. M., Auburn.
Hixon, W. N., Chicago Heights.
Hohman, E. H., Chicago.
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To them a certain sense of pride must be evident to reflect over this period of time and note the progressive changes in their profession.

The officers trust they will continue to be active, interested members.

B. H. SHERRARD, Secretary.

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ADAMS-HANCOCK	Edward F. Koetters, Quincy	H. R. Farwell, Quincy	Macomb	First Tuesday and Wednesday in November.
G. V. BLACK DISTRICT	Ross Bradley, Jacksonville	J. Allen Biggs, Jacksonville		Annual, January.
CENTRAL ILLINOIS	C. W. Hallam, Greenville	J. H. Hite, Shelbyville	Shelbyville	Third Wednesday and Thursday in February.
CHAMPAIGN-DANVILLE	E. G. Stevens, Champaign	H. S. Foster, Danville	Danville, March 16, 1933	Third Thursday of March and October.
CHICAGO	Howard C. Miller, 185 N. Wabash Ave., Chicago, Ill.	Stanley D. Tylman, 185 N. Wabash Ave., Chicago, Ill.	Chicago	Third Tuesday of each month except June, July and August.
EASTERN ILLINOIS	G. O. Ruff, Paris	W. J. Gonwa, Chrisman	Charleston, April 13, 1933	April and September.
FOX RIVER VALLEY	L. A. Henry, Wheaton	P. J. Kartheiser, Aurora		Third Wednesday in each month.
KANKAKEE	C. M. Marberry, Gilman	E. B. Crozen, Kankakee		Third Thursday in March and September.
KNOX	J. Frank Flynn, Galesburg	M. W. Olson, Galesburg		Third Tuesday in each month except June, July and August.
LA SALLE	S. C. Wood, LaSalle	J. C. Heighway, Ottawa	Ottawa, April 6	April and October.
McDONOUGH-FULTON	Edwin J. Schafer, Bushnell	K. G. Worrell, Macomb	Rushville, Oct., 1933	
McLEAN	G. W. Sargant, Bloomington	A. G. Orendorff, Bloomington	Bloomington, January 16.	
MACON-MOULTRIE	A. J. Schaub, Decatur	R. N. Eagleton, Decatur	Decatur	Second Tuesday of each month except May, June, July and August.
MADISON	A. Don Stocker, Alton	H. D. Bull, Jerseyville		February and October.
NORTHWEST	Foy R. Matter, Freeport	S. R. Neidigh, Freeport	Freeport	Three or four each year.
PEORIA DISTRICT	P. W. Clopper, Peoria	A. L. McDonough, Peoria	Peoria, Dec. 5, 1932	First Monday of each month except July, August and September.
ROCK ISLAND	A. E. Glawe, Rock Island	J. H. Nichols, Rock Island		February, May, September and December.
SANGAMO-MENARD-LOGAN	H. B. Singler, Springfield	H. P. Robinson, Springfield	Springfield	Second Thursday in each month except July, August and September.
ST. CLAIR	E. G. Hoffman, Chester	J. N. Collins, East St. Louis	Okawville, Mar. 30, 1933	
SOUTHERN ILLINOIS	J. L. Pickard, Benton	L. I. Webb, Ashley		Semi-Annual — March and October.
WABASH RIVER	Mary B. Meade, Carmi	D. Z. Wylde, Oblong		Annual — Second Wednesday in October.
WARREN	H. W. McMillan, Roseville	E. B. Knights, Monmouth		Fourth Monday of each month except June, July and August.
WHITESIDE-LEE	W. J. Palmer, Sterling	D. B. Bogaard, Sterling		May and December.
WILL-GRUNDY	John Limacher, Joliet	Hubert Kelly, Joliet	Joliet, January 12.	Second Thursday in January, March, May, September, November and December.
WINNEBAGO	A. A. Hoffman, Rockford	Fred L. Mead, Rockford	Rockford	Second Wednesday in each month except June, July, August and September.

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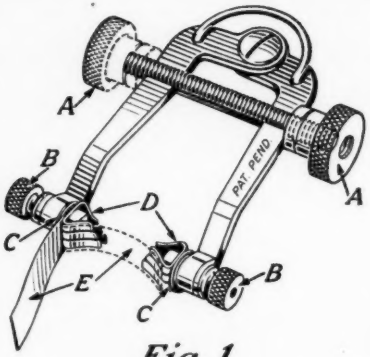

Fig. 1

E. indicates matrix band inserted at base of wedge which is bent to position of dotted lines to be carried to place between the teeth.

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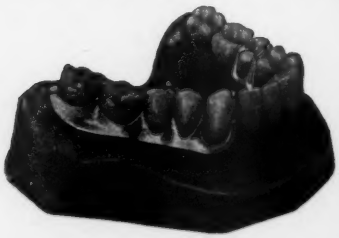

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